Practitioner Research: Nation-Wide Educational Reform for School Improvement in the Kingdom of Bahrain

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Abstract

This commentary consolidates research carried out from 2011-2016 in the island Kingdom of Bahrain, which is a vibrant context of educational reform. It draws attention to the main themes shared by the publications and demonstrates how together they form a clear picture of the development of educational reform in Bahrain and current outcomes. In addition, it demonstrates how these publications have contributed to related knowledge and scholarship, and delineates how, through reflecting on these publications, the researcher advanced her research skills and acquired new perspectives.

Four themes are discussed. The first theme is crosscutting, as it relates to research opportunities and limitations with respect to research in education in Bahrain. Such opportunities and limitations impact the investigation of educational practices such as the teaching and development of 21st Century skills (e.g. higher-order thinking skills and deep learning) creating significant challenges, in particular to school improvement efforts. These challenges are the focus of the second theme and link to the third theme, which centres on the main potential factors behind them. Specifically, Theme 3 concentrates on the predominance of a conservative culture of teaching and learning in the educational institutions of the Kingdom. Finally, the fourth theme highlights pedagogical strategies related to student-driven learning, which may mitigate the existing challenges and the factors contributing to them.

The discussion of the themes is followed with reflections on what the researcher envisions as the possible way forward in educational reform in Bahrain, which entails an emphasis on an interdisciplinary, problem-oriented approach to learning. Further reflections examine the experiences of being a researcher in a vibrant context of educational reform such as Bahrain's and what they involve in terms of opportunities and challenges. The final sections highlight how the researcher's publications have contributed to the scholarly literature and discusses some methodological considerations and possible future research directions.

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1. Introduction

The publications included in this commentary are selected from research works published between 2011-2016 when the researcher was employed as an Assistant Professor at the only teacher-preparatory college in Bahrain, the Bahrain Teachers' College (BTC) of the University of Bahrain. The variety of students with whom the researcher worked during that period, provided access to diverse groups of research participants and topics.

Four important crosscutting themes recurred in the researcher's publications and are presented in the subsequent section, namely: the research opportunities and restrictions with regard to Bahraini education settings; challenges in the development and teaching of 21st Century skills; the tendency toward a conservative culture of teaching and learning (T&L) in educational institutions; and the emphasis on student-driven learning in the researcher's teaching and research.

Following the description and discussion of the four themes, including considerations for future directions, is a section which includes the researcher's personal reflections on conducting research in the dynamic context of educational reform in Bahrain. This is followed by a critical account of the impact of the selected publications and how they make a coherent and significant contribution to knowledge and scholarship locally, regionally, and internationally. Finally, reflections on individual publications with their related methodological considerations are discussed, with indications for possible future directions of research.

First, however, this introduction will continue with an overview of school improvement, which will be followed with a detailed description and analysis of the regional context of the research, particularly in light of 21st Century challenges. It will also analyse the latest economic and educational developments in Bahrain, with an emphasis on educational reform, within which school improvement initiatives form an integral element.

1.1 School Improvement

School improvement is one of the initiatives that are emphasised within the policies set by school boards and ministries of education internationally (The Centre for Comprehensive School Reform and Improvement 2009b). It is also one of the ways that schools can support high student achievement and academic success (The Centre for Comprehensive School Reform and Improvement 2009a).

In its simplest definition, school improvement refers to successful transformation from old to newer and better conditions (MacBeath and Mortimore 2001; Gray et al. 1999). A more elaborate definition considers such kind of improvement as involving "leadership, teachers, culture, resources, pedagogy and the broader school community all working in unison to change school practices in ways that lead to better student outcomes" (Australian Council for Educational Research 2020). Among the main practices to be changed are usually those that take place in the classroom, meaning those of the teachers; as, the classroom is where the students are in direct contact with their teachers for long hours, and where the teachers learn about their students' needs and work on addressing them in ways that support their long-term development and success (Berg 2019). For this reason, the main focus in this commentary will be on the teachers' role in school improvement, with emphasis from the researcher on why it is crucial to support the professional status of this group of practitioners in particular.

Teachers, like school leaders, are key players in school improvement that leads to better student outcomes and this is mainly due to the strong and direct influence they have on students. What this means is that any actions they take in the right direction in terms of improving their practices usually also have a positive impact on students' performance and achievement results. For this reason, most of the targeted changes aimed at by school boards and ministries of education in their school improvement plans are expected to take place in teachers' practices within the classroom (Rivkin, Hanushek, and Kain 2005; Rockoff 2004; Goldhaber and Brewer 1997). In addition to teachers' practices, however, the beliefs that teachers uphold and their perceptions are acknowledged to greatly impact the cultural and structural changes needed for bringing about improvement within a school (Stoll, Creemers, and Reezigt, 2006).What this means, for example, is that how teachers

view their schools, of course based on their day-to-day interactions and experiences with various stakeholders, and what they believe are areas of improvement in these contexts, help in identifying what needs to be changed in terms of policies, planning, organization, approaches, and implementations, to directly and indirectly lead to better student outcomes. Hence, teachers' voices are vital in school improvement and matter greatly in the performance of schools (Ingersoll et al. 2018). It follows, thus, as Berg (2019) expresses it, that it is difficult for any attempt to improve schools "without tapping into the specialized intel of teachers" (p.84). However, the issue is that while teachers want to have a greater voice in school improvement, the existing school routines seldom support school leaders' ability to tune in to it, or to sufficiently involve this important group of practitioners as active participants influencing the process (Berg 2019).

Considering the important role of the teacher, successful school improvement partly materializes with a combination of teachers' voices being heard and adequate pedagogical practices being carried out within the classroom. However, teachers are also in need of the right resources, namely time and materials, as well as different types of support from the school administration or leadership (Berg 2019).

According to the researcher, one main type of support is continuous professional development, which can keep teachers up-to-date in terms of knowledge and skills with the latest developments in their field and enable them to deliver instruction that is both timely and relevant to the needs and interests of their students and their society. Thus, the researcher agrees with the view of other scholars that professional development must have a symbiotic relationship with school improvement efforts (Hawley and Vali 1999). This means that any teachers' professional development plan must be well-aligned with improvement goals and must target enhancement of students' learning and the fulfilment of their achievement needs (Sappington et.al 2012; Steiner 2004). In particular, professional development must aim to empower teachers to exercise their leadership potential (Lambert 2003). It should also support school administrators to unleash their teachers' leadership and instructional expertise (Danielson 2006), so that they can actively contribute to, and positively influence, their schools' improvement processes.

Implementing such a form of distributed leadership is usually a challenge for most school administrators or principals (Lambert 2003). This is despite the fact that the

teacher-leader role is not only necessary for, but is also regarded as the only hope of, sustaining a focus on school improvement (Hall and Hord 1987; Bernauer 2002). Failure to realise this role, thus, comprises one of the main factors contributing to the collapse of most educational reforms (Bernauer 2002) and could be one of the several factors behind the delay in achieving the reform target of raising the level of education in the researcher's context, Bahrain, to what is expected nationally. This is in part due to the fact that the teacher-leader role goes beyond teaching, involving commitment to, and ownership of, the school improvement initiatives. This means teachers take part in the responsibilities of developing, implementing and evaluating school improvement efforts, according to clear, concise, and cumulative improvement goals understood and subscribed to by all stakeholders (Bernauer 2002; Marzano 2003).

Thus, teachers become integral to decision-making in the school, usually a role undertaken by administrators. This is actually recommended by many researchers, who explain that "administrators cannot provide all the leadership necessary to resolve the mammoth challenges facing schools" (Lumpkin, Claxton, and Wilson 2014, p.60) and so need to collaborate with teachers toward school improvement (Heck and Hallinger 2009). The researcher holds the same view; as, teachers are probably the most aware of the day-to-day operations that take place in schools and are the closest to students and, thus, are very capable of providing in-depth and detailed information to be used as input in school improvement decision-making processes and planning.

Researchers have long stressed the importance of teachers working collaboratively with each other and with others in the school context; they have also demonstrated through their findings how teachers who work in a culture of isolation are a barrier to successful school improvement (Ramberg 2014; Muijs and Harris 2003; Little 1999; Sarason 1971). This is because such teachers tend to form collections of isolated classrooms in the school, rather than creating coherent professional learning communities (PLCs). PLCs are important for enhancing communication between practitioners, which is beneficial to them; as, through critical conversations and discussions they have with each other, they gain new and different insights and perspectives on things (Berg 2019).

Just like teachers' collaboration, however, the recognition, rewarding and appreciation of the work of teachers by the school leadership is also important for

increasing the success chances of school improvement (Lumpkin et al. 2014). Similarly, trust between teachers and administrators; availability of required resources, including time; and respect for teachers' opinions and efforts (Miller et al. 2008), are factors that can help school improvement succeed.

Despite the significance of teachers, and the pressures placed on them to meet educational policy demands (Priestley et al. 2012), a related but clear paradox surrounding their role in school improvement seems to be that the teacher's voice, as mentioned earlier, is rarely heard by school leaders and educational policy makers in general. In other words, it is seldom taken into account in decisions about changes needed in education (Hargreaves and Shirley 2011; Hargreaves and Evans 1997). The international literature offers many examples of teachers failing to respond to educational reforms, or redefining them, when not entirely convinced by them or when they happen to clash with their teaching philosophies (Hargreaves and Shirley 2011; Noregs Forskningsrad 2004; Darling-Hammond 1990). In accordance with the researcher's own position, this suggests that teachers' beliefs and perceptions of a particular school improvement initiative are important. They influence the way in which it is interpreted and enacted, which can contribute to its successful implementation. However, external conditions in the school environment can have an influence on these beliefs and perspectives, and can also play a significant role in increasing the success chances of any improvement attempt, as mentioned earlier.

It logically follows, thus, that teachers' attitudes toward any kind of initiative, whether positive or negative, can be enhanced or improved, respectively, by making some changes in such external conditions. On the same lines, engaging and involving teachers from the beginning in related discussions with policy-makers is also useful, so as to ensure that the proposed initiative coincides with their values and attitudes. This would facilitate their adoption of it and also strengthen their commitment to it.

Now that the researcher's position on school improvement is clear, it is important to mention that since 2008 this type of improvement has been an integral part of the educational reform movement in the Kingdom of Bahrain- the research context of the publications included in this commentary. Before examining this reform movement, however, a section on the regional context of the research follows. As, this can help result

in a heightened understanding of Bahrain's educational reform and related school improvement initiatives.

1.2 Gulf Cooperative Council (GCC) Region in Light of 21st Century Challenges

Educational Reforms in the GCC Region

Over the last two decades, several countries of the Gulf Cooperative Council (GCC) region (e.g. Bahrain, Oman, Saudi Arabia, United Arab Emirates) have undergone major national educational reforms. Such reforms generally involve transformations in public education, taking into account the changing needs of these countries' economies and societies. This entails an emphasis on science education as well as integration of information communication technology (ICT) in instruction (Wiseman and Anderson 2012). The aim is to prepare students for dealing with the global predominance of ICTs, which have contributed to the formation of new social structures and a global economy (Castells 2000; Bates 2010). In the present context, social structure refers to a set of human relations' arrangements that coordinate social ties, production or consumption relationships, experiences, and power; whilst, global economy denotes the network of financial transactions and production sites, markets, and labour groups, driven by businesses, money, and information across the world (Castells 2000). The new forms of social organization and interaction along electronically-based information networks, particularly the Internet, constitute the new social structure underlying society resulting in a global economy based on knowledge (Castells 2000). In such an economy, knowledge is a key determinant in the competitiveness, growth, and prosperity of nations. The networks contributing to such an economy are beneficial because they provide flexibility, adaptability and speed in executing and managing tasks, away from controlled and hierarchical forms of organization, in a rapidly changing world. They also provide users with opportunities to develop new values, interests, and perspectives through their access to a huge pool of information, including global sources, enabling comparative or cross-cultural research and studies (Castells 2000).

Current researchers suggest that networks, particularly social ones, have the potential for bringing many minds together to develop radically new products or services that could potentially solve difficult social, environmental, or scientific problems

(Iacobucci and Hoeffler 2016; Khatib et al. 2011; Jonsson 2010). This massive wealth and diversity of information, however, can sometimes be overwhelming and misleading. In addition, the capability of absorbing and applying knowledge in productive ways demands extensive and interactive learning processes, experience and skills development, as well as strong networking among researchers, commercial organizations, and other institutions (Bramwell and Wolfe 2008). For this reason, a fundamental requirement of this age is the development of what Barnett (2004) calls human dispositions that can enhance individuals' critical evaluation and selection of information sources. Dispositions that can also empower them to integrate and manipulate large and diverse amounts of information are also required, to generate more innovative forms of data and products.

So, what are important are educational experiences promoting the following: judiciousness to accurately assess information sources before utilizing them; criticality for synthesizing and manipulating data to produce ideas that are new and innovative, including new ICTs that are essential for transitioning towards knowledge-based economies; and active learning (AL) and innovative aptitudes to respond better to the opportunities and challenges brought about by the latest developments in technology (Romer 2007).

These are some of the main reasons why curriculum and pedagogical transformation, focusing on developing students' critical thinking, communication, problem-solving, digital literacy, creativity and innovation, is a government priority in the GCC countries' reforms and their aspirations of becoming knowledge-based economies (Bahrain Economic Development Board [BEDB] 2009; Baporikar and Shah 2012). This provides a rationale behind the researcher's emphasis on developing such skills in most of her research. It also highlights the significance of such competencies for today's learning, professional excellence, and success in this networked society in general.

Similarly, the researcher's publications as well as the GCC reforms emphasise student-centered models of education alongside teacher-centered instruction, primarily because they promote students' development of self-directed and independent learning more than teacher-centered models, which rely heavily on lecturing and teacher-led demonstrations (Goldman 2017; Bell 2010). Self-driven and independent learning will be elaborated on particularly under Theme 4. For now, we turn to the main rationale behind the GCC reforms.

Rationale Behind the Reforms: Sustainable Development

One important point is that the changes targeted by the GCC educational reforms are expected to have significant returns socially on individuals' professional and economic or financial status, as well as on their general well-being. This is reflected in the main concepts and key initiatives of the national visions of the GCC countries (BEDB 2019; Vision 2030 Kingdom of Saudi Arabia 2019; Oman Vision 2040 2019). The GCC reforms originated in response to a pivotal aim of the countries' governments and regulatory bodies to develop educational systems of high quality that can support national economies, whilst improving and enabling them to compete globally. This is in addition to the expectation from such educational systems to enhance the countries' sustainable development that is durable (Filho 2000) or systematic and long-term, ensuring in countries strong relationships between societal and environmental security with economic progress (Montebon 2018). Such development depends on, "our ability to balance economic, social, and environmental concerns," as emphasized by the 1993 Agenda 21 of the United Nations (Mossman 2018, p.38) with education playing a key role in this process (UNESCO 2010).

The researcher considers sustainable development in the different aspects of today's societies to be very much needed, particularly because we find ample evidence worldwide for certain sectors (e.g. health and the environment) suffering, partly because of advancements in other sectors, such as technology and industry (Miao et al. 2017; Woo et al. 2016; Deb 2014). Problems such as global warming and pollution (Bose 2010) and the wide prevalence of health problems, such as physical inactivity and obesity, which can lead to health-related issues and diseases (World Health Organization 2019; Blair 2009) are well-documented. Therefore, today's students must be prepared educationally to respond to challenging and complex problems such as environmental and health problems and to other diseases that may, according to the World Health Organization (2007), expand in the future due to acute environmental or climatic changes caused by industrial pollution and accidents. More importantly, though, students must be prepared to find ways to prevent similar imbalances threatening sustainable development. The expansion of network technology at the expense of other important life aspects is a good example, as its

development sometimes contributes to disruptions in social relationships and family ties, as well as cultural traditions and values (Longman et al. 2015).

Nevertheless, some studies have indicated otherwise, demonstrating that new communication technologies and social networks help increase civic engagement (Castells 2014) and sustain familial relations and friendships, especially in cases of migration when family members and friends live abroad (Vittadini et al. 2013; Bacigalupe and Lambe 2011). However, there remain serious concerns among researchers and child development experts that new technologies, particularly mobile phones and I-pads, can negatively impact family social cohesion because they tend to distract children from their parents (and vice versa) preventing conversations with each other (Radesky et al. 2014). There is also the threat of these new technologies bringing in uninvited content potentially exposing children and young people to a range of undesirable activities and risks, including pornography, cyberbullying, and other types of online harassment (Ybarra et al. 2006). Such content cannot only result in adverse psychological effects but can also negatively influence attitudes toward other cultures, people, and places and nourish fears and myths about them. This, in turn, can have negative repercussions on opinions about cultural diversity and willingness to personally invest in intercultural relationships (Chamberlin-Quinlisk 2012). If this happens, it prevents the development of one of the important dispositions needed for this interconnected and globalized age and time, basically that of multicultural acceptance and respect.

Since digital technologies are integral to our societies, and with the trend moving toward greater interconnectedness, it becomes crucial that today's students must be educationally prepared to embrace the technologies of the future and benefit from the positive rather than the negative aspects. This again means that students must acquire and develop the tools (e.g. technical, social, cognitive, ethical) needed to enhance sustainable development that allows technology to advance while enriching other vital life aspects, such as family ties, friendships, and positive cultural coexistence. Hence, the researcher believes that the focus of school improvement initiatives should be channelled specifically in this direction.

Reshaping Education for Sustainable Development (ESD)

For students to develop the tools referred to above, education for sustainable development (ESD) is crucial. UNESCO (2018) defines ESD as education that "empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity". ESD is seen as the result of the major paradigm shift manifesting itself in the 21st Century by rapid changes in almost every aspect of life (Hughes 2018; Bursztyn and Drummond 2014). These changes are social, economic, demographic, technological, political, and environmental and they impose corresponding transformations in educational structures. These changes are diverse in nature, adding to the complexity of the world, thus making it challenging and even 'super-complex', not because of the changes per se but because of their character, intensity, and the scope of their impact (Barnett 2004). This is primarily due to the world's greater connectedness, where a challenge or a problem in one part of the globe can more easily impact other parts because of the greater ease in transportation, communication, and dissemination of information, due to rapid and massive technological advances and networks (Castells 2014). Social media, particularly, is noteworthy for facilitating and expediting dissemination of information related to such challenges and raising general awareness about them (Sukmayadi and Effindi 2018; Salem and Mourtada 2011). Social media is capable sometimes of even successfully challenging the state power (Castells 2014). The Arab Spring movement, for instance, as a series of uprisings and anti-government protests in 2011, which spread across the Middle East, is a clear demonstration of the power of social media in disrupting the stability of nations and stirring up turbulence associated with change; Hong Kong being another more recent example.

What adds to the uniqueness of 21st Century challenges is the insufficiency of natural and human resources available. Scarcity of natural resources (e.g. energy, water, or food), has for some time been an issue of serious discussion on the agendas of many governments, businesses, and non-profit organizations (Royal Geographical Society 2016). As for human resources, the scarcity is reflected in a global skills' gap due partly to a lack of skilled individuals and partly to the availability of groups of individuals with skills but not necessarily those required by 21st Century industries (Cornelius 2011).

Due to all these challenges, Barnett (2004) argues that education in such an age should not only be steered toward the development of existing knowledge and skills, as these cannot take us very far. This is especially true since the diverse 21st Century changes leave uncertainty about whether the knowledge and skills that previously worked will be appropriate for meaningful engagement in the future. Barnett (2004) argues that education should target the development of a certain type of being (self, traits or dispositions), which might withstand incessant challenges to our understanding of the world and can also act purposively and judiciously in the face of such challenges. ESD offers a way forward to help not only understand the changes happening, but also to embrace them, so as to unleash and benefit from the many opportunities of innovation and creativity that, according to Castells (2000), are deeply-rooted in the values and technologies of this Information Age. Kirtiklis (2017) takes Castell's point further to explain that what characterizes the Information Age or knowledge society is the changed role information plays when compared to earlier social development. It is not only that much more information is available now. Rather, information in its generation, processing, and transmission has also become the fundamental source of productivity and power because of the technological developments of the age. This implies that education has the responsibility of empowering people to make the utmost use of this valuable technologically-conceived resource, and in innovative and creative ways not solely for economic purposes.

Looking at education from this lens, the researcher rejects what Spring (2006) calls the 'global educational security state model'. This model supports a consumer paradigm of industrialism, coupled with a human resources model that attempts to push forward economic growth, by reducing education, its programmes, and outcomes to instruments for meeting labour market needs. Like Mossman (2018), the researcher regards an economically-driven model such as this as unbalanced in the ways highlighted earlier. Instead, she expects education in the Information Age to be a progressive force that empowers people- as actors- to develop their societies in different ways. It also enhances their ability to address societies' problems in ways that maximise not only their personal well-being or the local public good but also the global good. Although the researcher acknowledges that scientific and ICT-related knowledge and skills are crucial for today's employability of graduates, regardless of their disciplinary area, she has always preferred

a more general or holistic emphasis in education. This is reflected in her view that employability, as a concept, should not focus on shaping or preparing us for a single career or profession. Rather, it should be thought of as an enhancement of self in general and career literacy, to become capable of finding, creating and sustaining work that is meaningful across one's working years and in various work settings (Bennett et al. 2016). This is therefore how employability is defined in this commentary. Such a definition challenges those who argue in support of 'education for employment' and simultaneously against 'education for education'. The researcher expresses this by explaining that:

> "We should not be designing our curricula, planning our activities, teaching, and assessing just for helping students secure a [specific] job while at the same time marginalizing equally significant human values and skills, such as: practicing integrity, ensuring social justice, practicing a life of liberty, etc. Rather, employability needs to be an end result of the education process instead of being a force reducing the whole purpose of education almost entirely to nothing but preparedness for a job".
>
> (Abdul Razzak 2020)

Thus, the researcher's view on education is similar to Ancient Greek philosophers', particularly to Aristotle's, who saw education as an all-round and well-balanced process of development, involving experience (learning by doing), contemplation (reflection), practical reasoning, and a connection to theories, for the simultaneous development of students physically, cognitively, and spiritually (Barnes 1982). Additionally, toward the end of this commentary, the researcher, alongside other scholars (e.g. Mossman 2018; Bursztyn and Drummond 2014), recommends that one way to make the utmost use of the opportunities of the current Information Age and to achieve sustainable development is through an interdisciplinary, problem-oriented education, which she considers as a form of education that complements well her Aristotelian view.

The result of such a view of education is a group of empowered individuals who fit into the existing social, economic, and political systems and are capable of actively influencing these systems' directions (Spring 2006). They can also make choices of relevance to both foreseeable and unforeseeable future issues (Martin 2007). This is important given that change appears to be the only constant or certainty (Shum and Crick 2016). These skills are also sought and valued by today's employers, due to the increasing

demand for broader skills for the achievement of economically-driven targets, amidst a competitive global economy (Mossman 2018; Bancino and Zevalkink 2007; Jacobson-Lunderberg 2016). Considering this, what follows is an explanation of ESD and the types of knowledge, skills, and dispositions related to it, which graduates, in general, and pre-service teachers, in particular, must acquire. Critical reflection, an integral component of interdisciplinary education for sustainable development, is a primary example.

ESD for Student Teachers

Scholars, such as MacDougall (2012) and Moore (2011), argue that graduates, especially in rapidly changing and publicly accountable fields, can no longer rely only on their subject-specific or disciplinary knowledge. Education is definitely such a field, as it tends to change with developments in technology, science, economy, politics, and society in general (McDonough 2012). As such disciplines/fields advance and as new information technologies continue to transform decision-making, students need to learn not only the new technologies but also new strategies of decision-making and problem-solving that consider multiple inputs, frameworks, and disciplines (Moore 2011; MacDougall 2012). New strategies of problem-solving are crucial in education because, as Schon (1983) explains, educational practice is a series of 'problem-solving episodes', and educational practitioners can rely on theories to solve the problems, while reflecting about them 'in action' (as you teach) or 'on action' (after you have taught) (p.95). The theories that teacher practitioners can turn to come from many disciplines such as: psychology, philosophy, linguistics, history, pedagogical sciences, computer science, neuroscience, and sociology (McDonough 2012).

The more reflective opportunities examined through a range of disciplinary perspectives that teachers have during teaching practice, the greater the enhancement of their performativity and the teaching-learning process (O'Hanlon 1996; Zuber-Skettitt 1996). This is because teachers are not only learning from experience or in authentic (real-life) contexts (Kemmis and McTaggart 1988) but are also developing two main types of thinking. One is characteristic of 'reflection on action', where new thinking is brought to bear upon information that is neither surprising nor uncertain, whilst the other is relevant to 'reflection in action' and is more advanced, as new frames of thinking elucidate the

events of unexpected practical problems, rendering the problems to be seen very differently (Schon 1983).

Because of the nature of reflection in action and the uncertainties involved in the process of working with authentic problems as they arise, this empowers teachers to come up with novel timely solutions not only for known and present challenges but also for ones that are yet unknown. It also helps them explore and express experiences, as well as develop the capacity to take intelligent and calculated risks, since reflection encourages a willingness to try new things and learn from mistakes (Dewey 1933; Schon 1983). This value of critical reflection is highlighted in several of the researcher's publications (e.g. Abdul Razzak 2015a; Abdul Razzak and Al-Baker 2015) and will be explained in detail in Theme 2. In them, there is an insistence on the need for teaching today's students how to independently reflect on their learning and experiences and to focus on the importance of providing them with the time and space needed for reflection. This is in the hope that by repeatedly practicing reflection in school, students will develop it as an enduring 'habit of mind' in everything they do (Costa and Kallick 2008).

One main problem, however, is that the pace at which technology is progressing, bringing with it changes in other aspects of life, is giving people insufficient time to critically reflect and respond to what is happening. Another issue is that there is no one accepted definition of critical reflection, although there is general agreement that it is valuable for learning and development (Smith 2011; Watson 2014). Rogers (2001), for example, defines critical reflection as a process of active engagement with a meaningful situation, in which personal assumptions and beliefs are examined, to integrate the understanding gained in ways that enable better future choices or actions and enhances overall effectiveness. Another helpful definition (Brookfield 1998), describes critical reflection as a process of inquiry that helps identify the assumptions that frame what we do, and is based on gathering information from four different sources: referring to one's autobiography or preferences; checking others' critical opinions or evaluation of us; crosschecking against others' (colleagues) experiences; and referring to theoretical literature or analyses. This is useful because irrespective of the definition, critical reflection helps identify problems or issues that need to be addressed and grounds decisions or actions in accurate information, thus, providing strong justification for them

(Brookfield 1998). It also models critical thinking and responsiveness to what needs to be tackled or addressed (Brookfield 1998), both of which are desirable in the super-complex context of the 21st Century.

Nevertheless, with so many different definitions of reflection, and with many different terms used interchangeably, there is generally some confusion among teachers with respect to what exactly counts as adequate reflection. What adds to this is that the term reflection is often used, especially in teacher education, but is not necessarily understood (Zeichner 2008). Almost everyone in education uses it and assumes others share their understanding of it and acts as if they know how to reflect but the process is much more complex than it initially seems (Zeichner 2008; Smyth 1992). Thus, when teachers request students to engage in any kind of reflective exercise or submit a reflective piece, they are not always clear or consistent in their expectations, which may lead to confusion. It has been argued this makes it more difficult for teachers to develop students' reflection as a 'habit of mind' (Landis et al. 2015). This has led researchers like Ryan (2013) to recommend students be provided in advance with a demonstration of reflection, and the intrinsic value of reflective practice, before they are asked to engage in it. The researcher emphasized something similar in Abdul Razzak (2015a). Here, she recommended that, in their first college semester, students be provided with a course introducing them to the benefits of continuous reflection on their learning experiences and involving them in the development of their own reflective pieces of work. Such recommendations are important especially because, to date, the teaching of reflection in higher education frequently remains inconsistent and superficial; as, reflection is usually misunderstood as mainly a written activity tagged onto assessment practices (Barton and Ryan 2014). Whereas, reflection can be represented through several ways other than written format, such as through visual, oral or performance-based modes of expression (Moon 2004). This has led researchers to argue that if reflection is not taught and assessed through multimodal approaches, with students engaged in deep discipline-specific discourses, then reflective practice will remain as an assessment afterthought in higher education rather than an integral way of learning (Barton and Ryan 2014). Treating reflective practice in higher education as an assessment afterthought is inadvisable, due to the importance of critical reflection and its potential to cultivate desirable skills needed for

survival and success in the 21st Century when well-integrated in the learning process. Such an integration is especially necessary at this level of education since students, in general, do not come into higher education equipped with critical reflection skills. This partly explains why in two publications (Abdul Razzak 2012a and 2011), the researcher attempted to introduce instructional strategies that operationalize critical reflection among a set of other skills. This will be described in detail in the themes' section of this commentary.

Introducing such instructional strategies alone, however, is not enough for reflection to be successful. Two key antecedents are necessary, namely a trigger incident and a person's readiness and willingness to reflect (Rogers 2001). Their reflection can be at an elementary level (e.g. making connections and self-awareness) or at an advanced and deeper level (e.g. integration and metacognition) (Landis et al. 2015). At the higher level, reflection can include evaluation of one's own thinking strategies, better known as metacognition or thinking about one's thinking (Livingston 2003; Roberts and Erdos 1993). Metacognition, as perceived by Flavell (1979), consists of both metacognitive knowledge and experiences and regulation. This knowledge can be about person variables (e.g. one's learning preferences, processing techniques, etc.); task variables (e.g. type and nature of task, time to complete it, etc.); and strategy variables (e.g. thinking strategies, conditions like when and where to use certain strategies). For metacognitive experiences or regulation, processes that oversee learning, such as planning, monitoring progress, and checking outcomes are viewed as necessary (Livingston 2003). This implies that metacognitive experiences or regulative processes usually come before or after cognitive activity and can develop with practice (Livingston 2003; Scheid 1993). Reflection, thus, clearly consists of a number of higher-order thinking skills (HOTS) (Roberts 2016).

The value of reflection for comprehending change and acting upon it is hence unquestionable, mainly because reflection is founded on deep and complex thought processes instead of shallow or random ones.

Concluding Remarks on GCC Reforms in the 21st Century

In summary, some of the challenges associated with the 21st Century and necessary skills have been presented and it has been established how and why certain

educational approaches (e.g. student-centeredness, holistic education, critical reflection) are perceived by many scholars, including the researcher, as constituting one of the most fitting paradigms for the super complexity of today's Information Age. The GCC region is no stranger to this age's challenges nor to the principles and practices of the proposed paradigm, which happens to be very much in line with the region's educational reforms' philosophy of education. These reforms also share similar challenges in the implementation of this paradigm, despite their countries' particularities. One common challenge in the GCC reforms, and which they share with other reforms worldwide, relates to the readiness of teachers and educational leaders for carrying out the new paradigm with the different pedagogies required (Darling-Hammond et al. 2010; Abdul Razzak 2013a). Since covering the reforms of all the GCC region is beyond the scope of this commentary, the next sections will concentrate only on the Kingdom of Bahrain; as, it is the context in which the research was undertaken. To understand this research context better, a detailed account of the latest economic and educational developments in Bahrain follows.

1.3 Latest Economic and Educational Developments in Bahrain

Background on the Kingdom of Bahrain and Economic Vision 2030

The Kingdom of Bahrain is an archipelago of islands in the Arab Gulf region. Unlike its neighbouring countries, Bahrain is limited in oil and gas reserves and has come to realize for some time that sustainable economic development requires other resources to accompany natural ones; primarily investments in knowledge that can facilitate innovations, including technological ones (Tseng 2014). For this reason, since the late 20th Century, Bahrain and other GCC countries began diversifying away from natural resources and more toward expansion of services, such as: tourism, retail, banking, and finance (Schwab 2011). Such diversification required simultaneously broadening citizens' competencies, which became reflected in investments in education, research, and innovation (Schwab 2011), as well as in associated changes in educational curricula in schools and universities. These changes were due to policy initiatives that directed curricula toward equipping employees of the future with the new skills' sets viewed as being necessary by current and prospective employers. More explicitly, and as explained above, in GCC education, emphasis has been placed upon science and ICT-based

instruction (Wiseman and Anderson 2012). Additionally, there has generally been increased emphasis on the teaching of 21st Century skills, as reflected in the national economic visions of most GCC countries, such as Bahrain's Vision 2030 (BEDB 2009). The overarching aim of Vision 2030 is to provide Bahraini citizens with better and more prosperous lives through their empowerment, by providing them with improved job prospects, enhancing their employability competencies, developing new economic sectors, and exploiting new and unique growth opportunities. The improvement of these employability competencies to match the skills' sets required by employers in Bahrain, in addition to pressures from a regional and global market, have resulted in the country's major coordinated social, economic, and educational reform initiatives, which initially started in 2005 as integral components of the national strategy underpinning Vision 2030 (Abdul Razzak 2014).

Educational Reform in Bahrain

Educational reform was considered by Bahrain's government and its regulatory bodies as an essential component for realizing Vision 2030, especially because the education system was not providing young people with the skills and knowledge needed to succeed in the Bahraini labour market (Mirza and Karolak 2019; BEDB 2009). Hence, the government saw a need for Bahrain to utilize its resources to invest for the future by improving its human capital through education and training. As explained in Vision 2030, education empowers people to reach their full potential in business, government and society by providing them with "the skills, knowledge and values that they need to become the employees of choice for high-valued added positions" (BEDB 2009, p.21). This indicates that the dominant related discourse in the country focuses upon economic perspectives more than on anything else. As a result, large-scale education reform has been taking place in Bahrain since 2008.

This reform entails the development of educational institutions and their operations at all levels (Reception to Year 13; vocational or training; and higher education), in order for them to function in accordance with specific quality assurance requirements and in a comparable manner to emerging international good practices. This reform has mainly centred on schoolteachers' and leaders' professional development (PD); vocational

preparation; and the quality of higher education institutions (HEIs) and their programmes in terms of: fitness for purpose, efficiency, academic standards, and effectiveness. For this reason, the BTC, the Bahrain Polytechnic, and the Bahrain Education and Training Quality Authority (BQA) were all established in 2008. BTC was founded by the Ministry of Education (MoE) with the mandate of preparing teachers and school leaders to lead school reform. This was in 2005 immediately after the MoE requested that the National Institute of Education (NIE) of the Nanyang Technological University of Singapore design and develop appropriate teacher education and educational leadership programmes for the Kingdom of Bahrain (BTC 2019). The programmes designed by NIE aimed at developing the skills needed in student-teachers, in-service teachers, and school leaders for making them critical thinkers and reflective practitioners. These NIE-BTC programmes emphasize the principles of holistic development of teacher candidates, purpose-driven education, theory-practice links, and reflective communities of practice, partnerships, authentic and formative assessment, and advancement of the teaching profession (BTC 2019). The Bahrain Polytechnic was established to prepare skilled graduates needed for the vocational market, whilst, the BQA was created as an independent body and an external reviewer of all educational institutions in the Kingdom, among them HEIs. More explicitly, the BQA identifies areas of strength and areas for improvement of the institutions or programmes it reviews (Albaker 2017; TAMKEEN 2010), without possessing any authority to open or close programmes or institutions. In addition, in the same year, the MoE, which officially oversees and monitors the whole school system, launched a large number of school improvement projects in order to ensure that BQA recommendations are addressed internally (Abdul Razzak and Albaker 2015). The projects include the following:

- Engaged student-centred learning;
- ICT integration;
- Cooperative learning;
- Differentiated instruction;
- HOTS and other 21st Century skills;
- Assessment for learning;
- Discipline for learning; and

- Instructional leadership for learning.

All the MoE improvement projects are mandated by the State and thus align with its adopted reform philosophies. Similarly, all the BQA implemented frameworks are reviewed and approved by the State and are mapped to the adopted philosophies of the state's reforms. Since these philosophies aim at bringing about change to overcome the challenges of the Information Age, then it follows that all BQA recommendations and MoE school improvement projects and the BTC also have the same target. They all, consequently, emphasize developing in students, teachers, and leaders 21st Century competencies and skills through focusing on ICT integration and digital literacy, HOTS, creativity and innovation, and independent self-directed learning.

With this explanation, it becomes clear that these key players in educational reform in Bahrain (i.e. BTC, BQA, and MoE school improvement projects), apart from the Polytechnic, tend to share a common denominator: the Bahraini schools. This is because each contributes in some way to the advancement and development of these schools. In more specific terms, the BQA impartially reviews, monitors and reports on students' achievement and the quality of T&L in schools, in comparison with international good practices. This is in addition to providing objective reports on identified strengths and areas for improvement, through the work done by its Directorate of School Reviews. The BQA, therefore, assists the schools in their pursuit of better outcomes by providing them with recommendations for improvement, however, without informing them, of the exact mechanisms by which they can be implemented. It is the MoE improvement projects that constitute- under the guidance of the MoE's school improvement teams- the party responsible for implementation of such mechanisms in schools. Nevertheless, irrespective of how ambitious these improvement projects are or how competent their teams may be, improvement that leads to better results is almost impossible without the right teachers and school leadership. This is where the BTC's education programmes and services, which are geared towards graduating new generations of 21st Century teachers for the school system, make their contribution. In addition to pre-service teacher programmes, BTC also provides continuing professional development to better equip in-service teachers and leaders (principals, assistant principals, and senior teachers) already in the system. One of the main

objectives of the BTC, therefore, is to prepare teachers and leaders for undertaking and realising the MoE's improvement projects. Naturally, BTC can successfully fulfil this objective only if the programmes and services it offers are of high quality; something that can be assessed through programme and institutional reviews conducted by the BQA's Directorate of Higher Education. There are, however, other more direct ways of evaluating the quality and effectiveness of BTC programmes, which are highlighted in the next section where the central themes of the publications included in this commentary are described. The first theme, in particular, which focuses on research opportunities and restrictions with regard to Bahraini education settings, touches in part upon specific barriers to evaluating BTC programmes' effectiveness.

2. Themes

As mentioned in the Introduction, some themes reoccurred in the researcher's publications. These themes emerged as a result of a general inductive approach for qualitative data analysis (Thomas 2003; Bryman and Burgess 1994). It involved a long and deliberate process [see Appendix D (p. 120) and Appendix E (pp. 121-139)]. It started with the researcher reading all her publications thoroughly several times; identifying text segments that contained the major meaning units, stated either in an explicit manner or implied implicitly; and then noting these. Afterwards, these text segments were critically analysed and categorised according to clusters of meaning. This process of categorisation is also known as data reduction (Thomas 2003). These meaningful clusters or categories were labelled and included: Factors that facilitated research; difficulties in conducting research; skills focused on in the researcher's classes; T&L strategies implemented by the researcher; challenges in implementing T&L strategies; weaknesses in students' classroom performance; and teachers' commonly practiced T&L and assessment strategies. Once the categories were determined, additional relevant text segments were added. Following this, links were identified in a hierarchical manner between each category and the remaining ones. Thus, the links were identified both in a vertical and horizontal manner. They were based on either commonality in meanings shared between the categories or on relationships between them. One example is that between the category focusing on the challenges encountered by the researcher in implementing certain T&L strategies and the weaknesses

in students' classroom performance. Here, the latter category was viewed as contributing to the former.

The different links made between the categories, with the researcher's interpretations of the meanings embedded in the text segments comprising these categories, gave rise to specific themes (McCraken 1988; Fink 2000). Four key themes were identified, and a mapping exercise was conducted between them and the researcher's publications, to show which themes were explicit or implicit in each publication. The mapping also helped highlight the main points of intersection between the themes and the publications, as well as the relationships amongst the themes [see Appendix D (p.120) and Appendix E (pp.121-139)].

The sections below present and discuss the four key emerging themes, which are also significant to the new educational paradigm that the reform movement in Bahrain is trying to initiate, propagate, and sustain.

2.1 Theme 1: Research Opportunities and Restrictions

Significance of Research for Reform

This first theme focuses on the main enablers and barriers of research facing the researcher while working at the BTC. It is crosscutting because of its focus (*research*) and the context. Research in higher education has the advantage of enabling university academics to pass on expert knowledge and skills acquired through their research directly to their students (Neumann 1994). Also, the personal learning gained by faculty members in the process of their research enables them to identify better with their students' learning (Brew and Boud 1995). Additionally, research encourages critical inquiry of both faculty and students (Robertson and Bond 2001). Furthermore, research becomes even more significant in a context of vibrant reform, such as the Bahraini one because reform entails change and innovation, both requiring evaluation through research, to understand their effectiveness. Research, thus, is a key mechanism to assist reform to accomplish its aims, namely improvement, via seeking potential solutions for perceived problems. This indicates the inevitable proximity of research to practice in the field of education (Terhart

2017), as it enables informed decision-making and interventions in educational professional practice. A close look at several research works included in this commentary will demonstrate their purpose of finding solutions or testing interventions for specific problems encountered in practice (e.g. Abdul Razzak 2011; 2012a; 2015a).

Research Context of Publications Included in Commentary

All the researcher's publications included here were produced when teaching at the BTC. There, she had the opportunity to teach many undergraduate students studying to become elementary school teachers in the Bahraini educational system and, thus, to help lead school improvement. She taught approximately 100-125 students per semester over a period of 12 semesters, over the academic years 2008-2012 (8 semesters) and 2014-2016 (4 semesters), thus totalling between 1200 and 1500 student teachers. Additionally, she had many opportunities to work with in-service teachers of all school subjects and levels (elementary, intermediate, and secondary), either enrolled in the part-time Post-Graduate Diploma in Education programme or in PD modules offered at the BTC. She also worked closely with senior teachers in middle-level management positions (i.e. Heads of Departments) and assistant principals seeking promotion to school principals, when teaching in the College's educational leadership programmes.

The large varied pool of education practitioners afforded opportunities to involve diverse participant groups in her research. In relation to the publications' topics, a challenge and opportunity that continually presented itself was the scarcity of peer-reviewed research on education in Bahrain. This was an opportunity for the researcher because it added to the uniqueness of her studies, considering that each one of them was contributing to research on the Bahraini context and, thus, documenting what is taking place in Bahrain as a record for history. Not only this, but also since the GCC countries were experiencing similar challenges with research scarcity, they too could benefit from findings of such a parallel context. As for international studies, the researcher's publications helped serve as an additional reference point against which they could corroborate their findings.

The research scarcity in Bahrain was also a challenge for the researcher because it provided very few reference points while reflecting on her studies. Nonetheless, her

research was also significant because, mostly, it focused on aspects related to a new key initiative in the country, namely the BTC, which was yet to be explored or examined in terms of: the impact of its programmes; the challenges for the T&L approaches and strategies it adopts; and ways it can better cater for the needs of the schools in Bahrain. Thus, the researcher could perhaps be described as a pioneer in her research whilst at the College, where she was driven by both duty and interest in scholarly study amidst a difficult, constantly changing and fast-paced reform environment.

Challenge of Denied Access to Schools

Being employed at the BTC and having exposure to its programmes, practices, and various stakeholders, put the researcher at an advantage for two main reasons. The first was the research opportunities available to her and the second is related to access, as in Bahrain, it is almost impossible for researchers to gain access into the public (government/state) schools for scientific research or evaluation purposes (Abdul Razzak 2013a). Therefore, the BTC served as both a research-rich context in-itself as well as a substitute research context which allowed (indirectly) the researcher insight into the school settings and the progress of improvement projects taking place within them.

According to the MoE official website, there are 207 public schools (112 primary, 21 primary-intermediate, 36 intermediate, 35 secondary schools, and 3 religious institutes) that offer children aged 6-17 years compulsory formal education. The 35 secondary schools provide mainly general education offered in a variety of routes (literary, scientific, commercial, and unified), but some are also technical and vocational in the programmes they offer. Not having access to the public schools to conduct research is explained in the researcher's publications (e.g. Abdul Razzak 2013 and 2012b), primarily in relation to researching the impact of BTC programmes in the workplace.

According to the literature, the focus of teacher training or educational PD programmes should be improvement of student learning (Collins 2000; Guskey 2000), with impact on participants' knowledge, skills, and practices in ways leading to enhanced student learning and achievement (Abdul Razzak 2013a, p. 739), not just in the measurable sense, but also in the process and experiences of learning. However, if it is impossible to enter schools and evaluate changes in students' achievement, then it becomes difficult to

arrive at research-informed conclusions about both school improvement and the quality and effectiveness of the BTC programmes. Evaluating the impact of BTC programmes in this way was, and still is, not possible and hindering research-informed practice. The only review conducted so far of a BTC programme is the recent BQA review of the Bachelor of Education (BQA 2016). This type of evaluation, although valuable, lacks the substance, credence, and significance of empirical scientific research directly undertaken in the field to critically examine and understand school improvement reflected through changes in student achievement.

In the absence of research-based conclusions, it is very difficult for key players in educational reform, such as the BTC, to make informed decisions about how to improve and enhance its programmes. Additionally, a situation such as this whereby researchers are not granted access into the schools undermines the historical insistence in fields such as the social sciences where researchers and practitioners aim to maintain harmonious relationships and collaborations with one another (e.g. Rowan et al. 2018). Furthermore, with more recent expectations in the social sciences that both researchers and practitioners (e.g. social workers or teachers) function in a dual role requiring competence in both research-informed practice as well as in practice-informed research, restricting school access acts as a major impediment. Researchers here usually "depend upon practitioners to offer valuable insight concerning emerging issues, needs of population groups, and the efficacy of interventions" (Rowan et al. 2018, p.15; Dudley 2010). On their part, however, researchers can provide the practitioners with education in research methods as well as guidance on strategies for engaging in research and scholarship, to help enhance the validity and credibility of the research undertaken by the practitioners and its findings. This way, practitioners can reach a level where their practice experiences can contribute to the knowledge base of their profession with minimal research-related risks (Rowan et al. 2018). The researcher is a strong supporter of this argument, as is evident from her explicit endorsement of teachers' action research within their classrooms for overall school improvement and her insistence on BTC faculty sharing the responsibility of educating and guiding them in the process (Abdul Razzak and Albaker 2015).

Research Participants

Given the restrictions on researchers' access to public schools in the Kingdom, the researcher had to conduct research on her students at BTC. As a result, throughout her publications, all participants were in some way affiliated with the BTC. Having her own students as her subjects of study can present a higher risk of researcher bias (DeLyser 2001; Hewitt-Taylor 2002), as will be elaborated on in section 6.1 of this commentary.

Nonetheless, having her students as research participants was an advantage. One benefit was not having to limit herself to researching only certain aspects or implementations of the BTC programmes. Instead, she was also able to investigate the in-service teachers' and school leaders' perceptions of, and their reported experiences in, their workplace (e.g. Abdul Razzak 2013a, 2013b, 2014, 2016a, and 2016b). Through researching practicing professionals, the types of problems, challenges, and needs existing within their schools were revealed. This gave her an opportunity to understand better the institutions which she and others at the BTC were pedagogically and professionally preparing teachers and leaders for and, consequently, to attune both her teaching and research accordingly.

From this came her systematic pursuit of a multi-dimensional preparation and development of teachers and leaders (technical, theoretical, practical, ethical, spiritual, and reflective preparation), to lead them to a more comprehensive understanding of their school contexts and enable them to deliver an all-inclusive and holistic education for students, thus resulting in greater improvements in their schools. Her focus thus was never limited to preparing teachers and leaders for the profession of teaching but also for life in the challenging 21st Century. This explains her recurrent emphasis on critical thinking and other HOTS in her teaching and research. This is explained in more detail in Theme 2 below.

Concluding Remarks on Theme 1

In conclusion, the lack of research identified above, makes any research conducted on education programmes in Bahrain or on any topic related to school operations and practices, unique and worthy of acknowledgement, regardless of how modest or limited it

may be. This is especially true in a crucial time of nationwide educational reform when research is urgently needed.

Such research, if adequately conducted, cannot but be of some benefit to the policy makers and key players involved, especially the MoE and the BTC; as its findings can collectively serve as a point of reference to return to whenever contextualized and well-informed decision-making is needed. Such a reference point is embodied in the researcher's findings generated from many years of research in Bahrain. In particular, MoE decisions regarding what changes may be made in the external conditions of schools (e.g. student-teacher ratio, school infrastructure, teacher workload) in order to facilitate school improvement efforts, can be enlightened and guided by the research which reveals participants' experiences, feelings, and perceptions reported on in the publications (e.g. Abdul Razzak 2016a, 2016b, 2014, 2013b). Similarly, BTC decisions on how to best build capacity of its students (whether pre-service or in-service teachers and school leaders) in ways that could empower them to lead and sustain school improvement initiatives, can also be guided through the same means (i.e. the publications' findings). In relation to this theme, the most befitting capacity building approach seems to be that which empowers teachers and school leaders to conduct their own action research projects which could eventually help advance school improvement. This is very much needed particularly if the restrictions in Bahrain on university faculty members entering schools to conduct empirical field research continues; although, ideally, a reconsideration of the rules and regulations denying researchers access into schools by the Bahraini government (represented through its education ministry) would be even better. This is especially if these regulations are amended to encourage and support a partnership approach between university researchers and school staff, which would help build a community of practice based on shared interest and collaboration.

As a last point on the researcher's publications, it is important to note that given the interdependent relationship between BTC and the schools in Bahrain, it is not possible and might be even unwise to separate the programmes and services offered by BTC from what is happening in schools, and vice versa. Any research conducted on one of the two cannot but yield implications for the other. This is clearly demonstrated through the researcher's publications, as will be explained later in this commentary.

What facilitated this process of trying to understand the complexities of practice within school and college settings is the fact that the researcher utilized diverse research methodologies in her publications, often including both qualitative and quantitative data collection tools and analyses (Abdul Razzak 2011; 2014; 2016a). This will be elaborated on further in Section 6. However, the important point here is that the qualitative approach in the form of small-scale inquiries, or as Flyvbjerg (2001) would call them 'social context-dependent studies of specific cases' (p.392), that the researcher relied on, utilizing varied research tools such as: focus group discussions; interviews; reflective exercises; journal entries; notes and observations; analysis reports; and feedback sheets' analysis (See Appendix H), allowed the exploration of research participants' perceptions, attitudes, and beliefs, enabling an in-depth analysis of matters from their own perspectives, in addition to that of the researcher, and thus providing an interpretivist perspective in terms of knowledge.

Thus, as Bryman (2004) explains it, the researcher was less concerned with establishing causal connections, generalisation, or temporal connections; her research inquiries or case studies focused instead on 'understanding behaviour in its specific social context' (p.53). In other words, she engaged in her research projects with a specific intention, which is that of understanding and interpreting some aspects of behaviour or practices, and the reality of things, in her participants' workplace (schools) or in their programmes of study at the BTC. Her participants were selected as samples for research basically because they fit the nature and the purpose of the studies she was conducting, which is an acceptable sampling practice in interpretive research (Bhattacherjee 2012). At the same time, she was aware when conducting her studies that not all participants may be honest, unbiased, or free of hidden political agendas. However, because she knew her research context very well- having been raised and living all her life in the region- she was able as an interpretive researcher to "see through the smoke (hidden or biased agendas)" as Bhattacherjee (2012) describes it, and accurately interpret the true nature of the objects/phenomena under investigation, providing rich narratives of them based on the subjective perspectives of the participants and the meanings of their experiences (Bhattacherjee 2012).

2.2 Theme 2: Challenges in the Development and Teaching of 21st Century Skills

In her publications, the researcher regularly focused on 21st Century skills, such as: HOTS including critical thinking; problem-solving; reflective thinking; and digital literacy. Theme 2 discusses the main challenges pertaining to students' development and application of such skills in Bahrain. It does so by embedding these challenges in the context of other literature and by exploring other possible contributory factors in the local educational context, to understand how such challenges associated with a super-complex age and time may be addressed.

Higher-Order Thinking Skills: Critical Thinking and Deep Learning Skills

In brief, it was evident from interactions with BTC students in classes and from the level and quality of their assessed works that they were, in general, weak in terms of HOTS' applications. Forming connections between ideas and concepts; employing analytical and critical thinking skills; solving problems creatively; and applying and transferring knowledge and skills to new and real-life situations, were among the challenging areas for the students (Abdul Razzak 2014; 2012a; 2011). This was in addition to their apparent weakness in the metacognitive skill of self-regulation (defined as the process of actively setting goals and engaging in activities that lead to their achievement and evaluation, Edens 2008/9).

As Nurmi (1989) suggested, self-regulation in learning involves two main stages. The first is cognitive planning, where the learner sets task-related goals and constructs plans for how to achieve them, and the second is evaluation of behavioural outcomes, after the learner implements strategies that help gain control of, and make progress on, the task. Other researchers have also added that self-regulation involves learners taking responsibility for their learning and maintaining motivation (e.g. Vermunt and Verloop 1999; Boekaerts and Niemivirta 2000; Pintrich 2000). This implies that self-regulation facilitates independent learning in students (examined later within Theme 4). Of relevance here is that efficient self-regulation plans and strategies lead to more effective studying, a deep approach to learning, and improved student outcomes (Norem 1989; Lonka and Lindblom-Ylänne 1996; Richardson 1997; Watkins 2001). Deep learning is defined as

learning involving critical analysis, the linking of ideas and concepts, creative problem-solving, and application (Harvey and Kamvounias 2008). It contrasts with surface learning, where students process information in a superficial way, with relatively little effort and reflection, relying mainly on memorization (Marton and Säljö 1976; Biggs 2001; Cavolla and Schafer 1994; Entwistle 2000; Svensson 1977; Chan 2003b). In deep learning, the information is processed in a more meaningful manner and students are aware of their understanding and the logic of arguments presented (Entwistle and Peterson 2004; Duff and McKinstry 2007; van Rossum and Schenk 1984).

Since the BTC students were generally weak at self-regulation, their learning appeared to remain at the surface level (e.g. Abdul Razzak 2011; 2012a; 2016b). This was a common weakness in students entering higher education from the Bahraini pre-university school system and represented an apparent skills' gap between educational levels. This constituted an area of concern for the researcher and, consequently, inspired her research. However, in-depth research revealed that this skills' gap between school and post-secondary education is not unique to Bahrain. For example, a survey by the Cambridge International Examinations of more than 1,000 teachers from around the world indicated that 85% of participants reported students lacking critical thinking when starting college (Stewart 2014), with similar findings in the USA (Wagner 2011) and in the GCC countries (Ernst & Young 2015; Jones and Punshi 2013).

Knowing her students' weaknesses incited the researcher to consider how this might be addressed in the Bahraini school system. In response, she undertook two main separate scholarly activities. The first investigated schooling factors potentially impeding the appropriate development of Bahraini students' deep learning and critical thinking (Abdul Razzak 2016b). The second involved the introduction of AL strategies (e.g. PBL, role-playing, and e-portfolio assessment) alongside direct instruction in her classes. The rationale here came from the evidence in the scholarly literature indicating the positive effect of such strategies on reinforcing students' understanding and promoting deep learning (Beckem and Watkins 2012; Murchu and Muirhead 2005; Biggs 1987). She also aspired to pass on the use of these strategies to the schools, reasoning that by applying the strategies on her college students, they, in turn, would realize their benefits and apply them, as teachers and thus help contribute to school improvement in the process.

From the many definitions of AL available in the literature, the researcher considers Bonwell and Eison's as the most straightforward. It defines AL as a method where students are actively or experientially involved during the learning process, rather than being just passive listeners (1991). Other researchers add that for active learning to occur, students must engage in tasks requiring higher-order thinking, such as: analysis, synthesis, and evaluation (Renkl et al. 2002).

The research participants in Abdul Razzak (2016b) were senior teachers (or Department Heads) from the Bahraini public schools, enrolled in the Educational Leadership Programme at BTC. The study explored their perceptions of diverse curricula in their subject areas at schools and their evaluations of the ways in which these curricula promote deep learning and critical thinking through their content, activities, and assessments. It also investigated the senior teachers' direct observations of the instructional methods utilised by the teachers they supervise and the way in which these methods encouraged or discouraged students' successful application of critical thinking and deep learning. What follows is a synopsis of the study's main findings, which indicated several factors possibly acting as barriers for the development of students' deep learning skills. These include:

- Outdated curricula in some subjects, including content possibly irrelevant to the interests and needs of today's learners;
- In most cases, traditional-based delivery of instruction, including pencil-and-paper assessment tasks, and student engagement limited to rote learning or practice drills;
- Emphasis on theoretical knowledge rather than practical application in many classes; and
- Improved or more updated curricula in some subjects (*mathematics*, *science*, and *English*), which despite possessing potential to promote deep learning and critical thinking, are nonetheless taught by teachers who either do not have the time or appropriate knowledge (or both) to prepare and cover activities addressing HOTS.

The last bullet point is also supported by the findings of the latest BQA reviews of public schools in Bahrain, which identified inconsistent use of effective T&L and assessment strategies by teachers, in addition to limited opportunities to develop students' HOTS (BQA Annual Report 2018, p.29). Likewise, outside the context of Bahrain, several international studies have confirmed teachers' uncertainty about, and lack of expertise in, effective methods for promoting critical thinking and other deep learning skills (Ramdiah et al. 2019; Cheong and Cheung 2008; Mandernach 2006). This demonstrates that the unpreparedness of teachers in this respect is not unique to Bahrain. Nonetheless, it remains one of the main potential areas of school improvement and constitutes a challenge in the development and teaching of 21st Century skills and the fulfilment of the reform objectives in the Kingdom.

Furthermore, in relation to the apparent unpreparedness of teachers, another study (Abdul Razzak 2016a) confirmed teachers' need for guidance when trying to integrate HOTS with classroom instruction. The findings pointed, among other things, to teachers' challenges in integrating HOTS without simultaneously shifting focus away from the main lesson content and to mismatches between the selected activities and the targeted higher-order thinking skills.

In addition to lack of expertise, several other factors identified in Abdul Razzak (2016a) could be behind teachers' failure to integrate HOTs in their instruction. These include time pressures and large student-to-teacher ratios in classrooms (sometimes reaching 40:1), making it difficult for teachers to manage their lessons and to deliver their curricula even by direct instruction. Given that direct instruction is recognized to be less time-consuming in covering the same content, and easier to implement than AL strategies involving HOTS-related activities (Shaw 2004), it is unlikely that the teachers would be encouraged to attempt the latter. Finding solutions to the problem of large student-to-teacher ratios in public schools of Bahrain does not seem close. Added to this, the scarcity of land restricts the construction of additional schools (Bahrain MoE 2010).

HOTS' integration seems to be only slightly better in Bahrain's HEIs than the schools. From 119 university programmes reviewed by the BQA in its latest cycle of 'programmes-within-college' reviews, only 79 satisfied the requirements of the academic standards of the graduates and related assessments (BQA Annual Report 2018). Based on

the BQA review reports, this can be generally attributed to assessment tools and methods that are unsuitable for assessing the intended learning outcomes, especially those related to the acquisition of HOTS and analytical and problem-solving skills (BQA Annual Report 2018). Instead, the BQA reviews reported that the assessment tools designed by faculty members tended to focus mainly on recall and retrieval of information instead of stimulating students to employ HOTS, such as critical thinking. This implies that there is more focus on the product as opposed to the process of learning.

It is clear, that more is needed from HEIs to prepare faculty members for appropriately integrating HOTS into their lessons and, in the researcher's view, this should not be limited to classroom-based environments only. Rather, online ones, where e-learning occurs should also be given attention for several reasons. For example, such type of learning with its special characteristics has been found to impact positively upon learners' performance and their development of HOTS (e.g. Lopez-Perez et al. 2013; Chang 2012; Jan 2009).

Research also indicates that some faculty members need special e-learning guidance, since they already find designing simple and basic online activities challenging and, thus, find it very difficult to create complex e-lessons, such as those capitalising on students' HOTS (Abdul Razzak 2016b). Such challenges have led scholars like Al-Sulaimani (2010) to conclude that even though GCC education systems have increased access to ICT tools and resources, they often still mirror pre-ICT educational cultures and settings. This is because these systems cannot build what researchers call 'knowledge production capacity' to create opportunities for innovation, which typically require active, HOTS-enhancing inquiry-based instruction available via ICT (Luckin 2008; Wiseman and Anderson 2012).

Knowledge production capacity implies the development of subject-area expertise and the ability to transfer what is learnt in school to support research development and innovation in real-world situations beyond the classroom (Wiseman and Anderson 2012; Abdul Razzak 2018). Such faculty challenges with e-learning are undoubtedly an important area for development in HEIs in Bahrain although, the researcher would not go as far as agreeing with a binary perspective that classifies pre-technology educational cultures as defective or inadequate in comparison to post-technology ones. It is important

to highlight that this particular area of development in relation to e-learning persists despite the fact that the strategies of most HEIs in Bahrain generally emphasise employment of instructional methods that enhance skills needed for knowledge acquisition, creation, and implementation, which can contribute to sustainable development of innovation at the national level (Abdul Razzak 2018).This misalignment between the actual and intended use of e-learning reflected in the overall institutional strategies of most universities in Bahrain, was identified and confirmed in a study by Al-Ammary et al. (2016). This is an area requiring attention as it constitutes one of the barriers for HOTS' integration in HEIs in the Kingdom and, thus, comprises another main challenge in the development and teaching of 21st Century skills.

As for reasons as to why faculty members in HEIs seem to avoid HOTS' integration in their instruction, the researcher is unaware of any formal study on the topic, which suggests this as an important research gap to be addressed in Bahrain. However, Theme 3 below will present and discuss some possible reasons for this but before that, reflection as another crucial higher-order thinking skill will be discussed.

Higher-Order Thinking Skills: Reflection

Reflection is often referred to in the researcher's works (Abdul Razzak 2015a and 2015b) and it is a skill that was examined in some depth in the introduction of this commentary. Like critical thinking and other deep learning, meaningful reflection was not a skill that BTC students came equipped with from their schools. This was evident through BTC's expectation that students undertake and develop, in every course and teaching practice component of their programme of study, reflective pieces on their assessed works and include samples of these reflections along with the corresponding works in their e-portfolios.

At BTC, the e-portfolio assessment extended from the first semester until the last, where it concluded with a capstone project comprising a comprehensive presentation covering selected students' e-portfolio works and related reflections since the beginning of their programme. The presentation also includes the rationale behind selecting each work and their contribution to meeting the intended learning outcomes, better known at BTC as 'the BTC competencies'. More details of the BTC's e-portfolio requirements are

provided in Theme 4 but of relevance here is that students' reflections lacked, in most part, depth and criticality (Abdul Razzak 2015a). This was closely examined in Abdul Razzak (2015a), which indicated that when students reflected on their work, they did so in very general and often shallow ways. Reflections were often very descriptive and missing many linkages to course outcomes, programme competencies or life experiences. Most reflections consequently lacked relevance and made little sense (Abdul Razzak 2015a). Thus, the researcher tried to address students' ability to reflect by implementing other instructional strategies in her classrooms such as role-playing and PBL, which, it is argued, operationalize a set of skills including critical reflection (Brears et al. 2008).

The need for better understanding, knowledge, and application of reflection is not unique to BTC. On the contrary, it is commonly shared by HEIs worldwide. For example, a study by Lo (2010) on Taiwanese students showed that students' critical reflection in portfolio implementation varied greatly in scope and depth among students and that, in general, most admitted finding reflection very difficult. Similar difficulties were also encountered by students in Hong Kong (Lam 2013), Austria (Stock and Koeppel 2012), and Australia (Roberts 2014). In addition to being challenged, students often do not quite understand why they are being required to reflect on their learning (Stock and Koeppel 2012).

With this in mind, it is clear that reflection is complex and, in the BTC, this was not only true for students but also for their instructors. This was demonstrated through faculty members' involvement in students' e-portfolio implementations, where it became clear that there was no common understanding between these members about what constitutes meaningful reflection on students' work (Abdul Razzak 2015a). This led to confusion among the students, since they were receiving mixed messages from different faculty members about how to complete their e-portfolios (Abdul Razzak 2015a).

In conclusion, faculties' and students' lack of clarity on what constitutes meaningful reflection comprises one of the barriers for the development of HOTS in the educational system of Bahrain, adding to the other challenges in the development and teaching of 21st Century skills. Other challenges in relation to developing digital literacy are described next.

Digital Literacy

Finally, another 21st Century skill regularly focused on in the researcher's publications (Abdul Razzak 2013b; 2014; 2015a) is digital literacy, defined as the ability to make use of ICT in learning and work activities (Erstad 2006; Krumsvisk 2006). Like HOTS and deep learning, there seem to be several challenges in Bahraini public schools hindering the development of digital literacy of students. One relates to teachers' integration of technology in ways that often seem to leave out one of the key components that render such integration successful (Abdul Razzak 2013b and 2014). This component is the third among the following necessary ingredients of technology integration: teachers and students learning how to use ICT; teaching using ICT; and students learning by and through ICT (Abdul Razzak 2013b). Teachers often focus on the first two components in their implementations, while frequently neglecting or undermining the importance of the third, which involves students using ICT for innovation (Wiseman and Anderson 2012; Abdul Razzak 2013b and 2013a). As suggested by Cornelius (2011), this reflects misguided attempts at adding more technology, without revising and adjusting the teaching methodology. This often happens due to flawed understanding of the concept and process of technology integration by the school leaders and teachers (Abdul Razzak 2013b and 2014). Flanagan and Jacobsen (2003) explain that without the last component (a form of engaged learning), it becomes difficult to integrate technology in meaningful, challenging and authentic ways across the curriculum. The inclusion of the third component is thus highly recommended and stressed because it is also one of the central aims for the introduction of ICT integration in education (Abdul Razzak 2014).

Other contributing factors hindering the development of digital literacy in Bahraini schools, as indicated by for example Abdul Razzak 2013b and 2014 include: limited availability of technological resources; outdated technologies; insufficient technological laboratories; lack of effective or sufficient technical support; and of relevant teacher training. As for HEIs in Bahrain, it was already mentioned above that the faculty's challenges in e-learning design constitutes a barrier for the development of students' critical thinking, creativity and innovation.

To summarize, digital literacy, along with other skills of relevance to the 21st Century, such as critical thinking, reflection, and other deep learning skills, need to be

developed in Bahrain in ways that enable students to thrive in this super-complex age and time. A detailed examination of the T&L methods that play a role in their development is therefore followed up in Theme 3 after the concluding remarks on Theme 2 below.

Concluding Remarks on Theme 2

Challenges in the development and teaching of 21st Century skills are present both at the school and post-secondary school level in Bahrain. These challenges are varied in the sense that some relate to the apparent lack of opportunity for educators to develop this expertise during their education, while others relate to external conditions existing in the educational environments themselves (e.g. outdated curricula, rote learning, emphasis on theoretical rather than practical knowledge). The researcher's findings which point to these varied challenges can be of benefit, in particular, to the MoE and the BTC (See for example Abdul Razzak 2016b). They can help inform the MoE about how some conditions within schools and related policies need to be addressed or changed, if students' HOTS and other 21st Century skills are to be fostered in ways that would enhance student achievement and, thus, help meet school improvement goals.

With respect to BTC, the findings highlight the capacity building needs existing in schools and also among some of the BTC faculty members, which are relevant to the teaching and development of such skills. The BTC faculty members' role is important because they have the responsibility of empowering teachers and school leaders for implementing improvement initiatives. Among the highlighted needs are those relevant to understanding:

- how to best integrate HOTS in lesson content and activities;
- what constitutes deep and meaningful critical reflection on learning and how to encourage such reflection and cultivate it as a habit in learners; and
- how to integrate ICT and design e-learning lessons and activities that capitalize on students' HOTS and create opportunities for innovation and knowledge and/or skills' transfer.

2.3 Theme 3: Tendency Toward a Conservative Culture of Teaching and Learning

Theme 2 established that T&L methods in schools and HEIs in Bahrain might be reviewed and developed in order to facilitate students' HOTS and deep learning. Relevant to this is the identification of the types of T&L methods predominant in learning settings in the Kingdom and the rationale for these. Theme 3 will explain how methods have evolved, especially after the introduction of the reform initiatives and school improvement projects. This theme is important because clarifying the T&L methods that appear to be common practice in the schools and universities can shed light on many other relevant aspects, for example, the process of students' learning and associated outcomes; learners' competencies and limitations; teacher PD; and the general T&L culture in educational institutions. Discussing possible reasons behind teaching methods can help enlighten policymakers in Bahrain about changes necessary for bringing about better teaching practice and, ultimately, improved student outcomes and results.

Development of T&L Methods Over Time

For a long time in Bahrain, the educational system, especially in public schools, mirrored what Paolo Freire (2003) called 'the banking education' or direct instruction (Hayes 2018; BEDB 2008). This means it relied mainly on rote learning and memorization, while treating students as empty vessels to be filled with information- an approach often labelled as 'traditional' (Leonard 2018). However, the researcher prefers the term 'conservative', as this denotes resistance to change and the preference of maintaining the status quo. Furthermore, the term 'traditional' has been argued to hold negative implications (e.g. Wendt 1976; Mallon 2010), such as inferring that something is static, not dynamic, and incapable of change or innovation, which is not what the researcher sees in the instructional approaches in Bahrain.

With the relatively new educational reform movement in the Kingdom, schools have started moving away from this conservative approach to a more student-centred one (Leonard 2018; Abdul Razzak 2012a). Historically, student-centred learning originated from two main constructivist theories: Jean Piaget's Cognitive Theory of Development (1936), which suggested that students actively construct their own learning, and Lev

Vygotsky's Social Development Theory (1962) and the later works of Bruner (1978). From Vygotsky and Bruner, the concept of knowledgeable others providing students with the appropriate scaffolding relevant to their particular level of development (Zone of Proximal Development) and contributing to their learning was adopted (Leonard 2018). Constructivist teaching methods involve an authentic approach to assessment (Dagar and Yadav 2016) that relates to real-life tasks (e.g. projects; laboratory demonstrations; presentations; role-playing). This makes learning meaningful to students and aids them in creating new knowledge, by interacting with what they already know (prior knowledge) (Dagar and Yadav 2016).

The significant point here is that since the reform began in Bahrain, there have been attempts by teachers in schools and faculty members in HEIs at allowing students to construct their own learning through appropriate scaffolding. Despite this, there continues to be a greater reliance upon direct instruction in educational institutions reflecting a conservative instructional culture (Ernest and Young 2015; Lawrence and Mirza 2016; Abdul Razzak 2016b).

Current Status of T&L Practices

As mentioned earlier, the BTC was established to reform T&L in schools in Bahrain. This, however, should not be taken to imply that instruction in HEIs in the Kingdom is in no need of development; on the contrary, T&L practices are still not far from being conservative in many cases. This is despite the fact that, according to some, Bahrain has better tertiary education relative to many regional peers (GFH 2016). Generally speaking, research suggests that the whole GCC region needs increasingly qualified educators, subject matter expertise, and more 'modernized' pedagogies in its HEIs (Wiseman and Al-Bakr 2013; Deloitte 2013; Kirk and Napier 2009). These results also show that the quality of higher education provision and its standards can benefit from further development, to facilitate achievement of desired employability requirements and life skills (GFH 2016; Deloitte 2013).

In particular, Bahrain's HEIs still appear to rely more heavily on direct instruction than on constructivist learner-centred pedagogies, as revealed through the latest BQA reviews (BQA Annual Report 2018) and validated by the MoE's Higher Education Council (HEC). For this reason, in its National Higher Education Strategy (2014-2024),

the HEC describes the HEIs as in need of responding effectively to the various improvement recommendations and requirements of the BQA reviews (MOE 2014), to help promote knowledge transfer and innovation.

It is probably still quite early to determine the impact of the changes brought about by BTC over the last ten years primarily because change naturally needs time. What appears to be more challenging is the resistance of teachers to changes in practice. Many research studies from different parts of the world indicate that frequently teachers and school principals react to change with reluctance (Papaioannou and Charalambous 2011; Hennessy et al. 2005). This is especially true when the change requires adopting very different methods from those practiced throughout their professional lives. Methods that involve ICT integration in instruction are a good example here (Totolo 2011; Bingimlas 2009).

Research has indicated that the reluctance of teachers and principals to adopt and use ICT, as an example, can be attributed to technological anxiety and to two main perceptions: one relating to viewing ICT in education as not being useful and the other to perceiving ICT usage as difficult (Totolo 2011). This seems to be especially true for older and more conservative generations of teachers who refuse to work with technology (Abdul Razzak 2013b). Despite the researcher's rejection of a clear binary position when it comes to ICT integration in instruction, it is important to note that there are those who argue that 'old world teachers', with their unwillingness to acknowledge that new T&L methods are needed and with little interest in receiving ICT-related PD, somewhat inhibit meaningful change that sets in motion learning and success in today's world (Cornelius 2011, p.52).

Resistance to change is not the only reason for teachers to adhere to conservative ways of instruction. Often, conditions in schools constitute authentic challenges for teachers to adopt what, may appear to them, to be unfamiliar or new methods. Some of these conditions in the schools of Bahrain are highlighted in several of the researcher's publications (Abdul Razzak 2016a; 2016b; 2014; 2013b) and were mentioned earlier in Theme 1. However, an important condition not previously referred to and which deserves highlighting is the lack of teachers' involvement in decision-making, especially relating to reform initiatives and school improvement projects. This point is important because,

as explained in the beginning of this commentary, teachers' involvement is needed for facilitating the acceptance and adoption of changes for improvement. Bernauer (2002) equates this kind of engagement with teachers' ownership of the change initiatives, which implies their participation in developing, planning, implementing, and evaluating the initiatives.

Teachers' involvement therefore means taking a leadership role while at the centre of change (Abdul Razzak 2016a), without which most educational reforms may fail (Hall and Hord 1987; Bernauer 2002). More recently, Mansour (2013) argues that it is imperative that the teachers' voice and professional experiences should be taken into consideration as they are critical for understanding educational provision. Similarly, the researcher's publication on school improvement projects (Abdul Razzak 2016a) demonstrated the importance of teacher's involvement and commitment for positive school change, without which the outcome is nothing more than superficial implementation.

Therefore, insufficient involvement of teachers in reform-related decisions in Bahrain is an issue requiring further investigation. Similarly, the factors listed above which contribute to teachers' adoption of conservative methods over constructivist approaches require examination if they are to be addressed. Here, we return to Theme 1 and specifically to the emphasis on the need for empirical research to be conducted in the schools, to acquire more knowledge and better understanding of the schools' conditions, practices, and cultures, so that BTC teacher education programmes can be better aligned to them. It is not too early, thus, for policymakers in Bahrain to take relevant actions which will ensure greater concordance between the two, especially since a recent study (Hayes 2018) has already pointed to some disjointedness between T&L methods of BTC practicing graduates and their schools' cultural context challenges. The positive point is that whatever decisions or actions policymakers may take at this stage, there is the expectation that they will not be faced with as much resistance as in the initial stages of the reforms. This is because, after ten years of reform, many teachers in Bahrain "…have come to realize that change is inevitable and…moving against the current is not going to get them anywhere" (Abdul Razzak 2014, p.70).

In the same context, it is important to consider changes still required in Bahrain's educational system, given the challenges and issues highlighted above and persisting after a decade of educational reform. Accordingly, Theme 4 below presents, after the concluding remarks of Theme 3, a brief exposition of what the researcher considers as among the necessary responses for addressing these pressing issues.

Concluding Remarks on Theme 3

In conclusion, the findings related to Theme 3 in general benefit the MoE and the BTC and, in particular, the MOE-BTC Steering Committee, which works on coordinating efforts between the two. This is because the findings help inform this committee on the nature of the challenges existing in schools which have the potential to nullify the efforts of the BTC in terms of preparing teachers for new approaches to teaching and learning. As a result, by being well-informed about them, the committee can plan its agenda accordingly and in ways that include mitigating measures that would aim at (1) developing/encouraging a school culture which is ready to embrace the T&L strategies of newly qualified BTC graduates, and (2) developing confidence in BTC graduates as 'agents of change' within a potentially 'conservative' school context. Clearly, the pursuance of the first aim would be more the responsibility of the MoE because it is the party directly responsible for the schools and leading change in them, while the second of the BTC where future school teachers and leaders' preparation takes place.

The intended culture to be created in the schools can only materialize if teachers' anxieties and fears towards the changes are addressed and replaced by a sense of safety, trust, support, and encouragement. This is in addition to replacing isolated work with more collaborative knowledge-sharing practices, in an environment where individual voices are heard, and practitioners are significantly involved in school improvement and reform decision-making processes. Otherwise, lack of concordance between the BTC practices and the schools will continue, which will clearly impact negatively the chances of success of any type of change aiming at enhancing student achievement and bringing about overall school improvement.

2.4 Theme 4: Emphasis on Student-Driven Learning

The fourth theme presented here is a potential solution for the challenges embodied in Themes 1-3. This final theme underscores the value of student-driven learning in the context of Bahrain, particularly for producing 21st Century educators and practitioners acting as change agents capable of moving school improvement and educational reform forward. The researcher embeds her publications in the context of other research, which indicate the benefits of student-driven learning, especially when promoted by AL strategies (e.g. PBL, case analysis, technology-enhanced learning, action research, role-playing, etc.). This theme is crucial due to its centrality as a potential response to the earlier themes and is represented in several ways in the researcher's publications. Links will be made here to her publications where this theme is explicitly or implicitly addressed.

What Student-Driven Learning Entails

In Theme 2, the relationship between independent learning and self-regulation was explained, where the latter involves learners taking responsibility for their learning and maintaining their motivation to facilitate independence in this process. Due to this relationship, research has often equated independent learning with student-driven learning. Student-driven learners are those who are actively in charge of their learning experience, normally in an environment where they have greater autonomy facilitated by feedback and support (Salter 2013). As a guided student-driven approach, this has been found to increase motivation, improve attendance, and foster critical thinking, problem-solving and creativity (Damron and Mott 2005; Su et al. 2014). It is also a more personalised approach to learning and depends on the lesson objectives, students' individual needs, and the goals they identify for themselves (Kallick and Zmuda 2017).

Setting one's own goals during instruction does not, however, mean absolute autonomy but rather a reactive type of autonomy (Littlewood 1999). This implies that once the direction has been initiated by the teacher, learners develop their plans and organize their resources, to reach the set direction or goal. In this type of learning, the teacher assumes a more facilitative role as opposed to an authoritative or didactic one. Teachers are more a resource for the learners rather than a driving force of their learning because

the students themselves and their interests, needs, and goals are its main drivers (Herranen et al. 2018). Thus, in student-driven learning, greater control is transferred from teachers to students and the focus is more on the learners' experience or process of learning than the outcome or product. The teachers' role is to intentionally develop their pupils' 'habits of mind' enabling them to take on this responsibility. Kallick and Zmuda (2017) argue that such habits include dispositions like "…posing questions to gather information; examining problems through multiple viewpoints; creating, imagining, and innovating; communicating with clarity; thinking flexibly; and persisting through challenges" (p.57). This entails ensuring that students possess the intellectual maturity needed to make informed decisions and actions related to their learning and development (Zou et al. 2015). It also involves engaging students in a number of cognitive and social activities, such as: PBL, meaning-making inquiries, interactions, inventions, hypothesizing, and personal reflection, while expecting them to simultaneously make full use of ICT in the process (Cranton 2012; Liu and Su 2018; Huang at al. 2017).

The Higher Education Academy in the UK (2014) warns that independent student-driven learning should not be assumed to be only learning in 'isolation'; as, it can also take place within situations of group learners, such as in collaborative work or activities, where individual learner outcomes are reached independently. Whether in isolation or in groups, this form of learning provides students with opportunities to develop learning skills that help them succeed in their personal life, as well as professionally (Yasmin et al. 2019; Abdul Razzak 2012a and 2011).

Active Learning Strategies, Attitudes, and Beliefs

Considering this, Theme 4 will focus on independent student-driven learning, which is usually promoted through AL strategies (Vandiver and Walsh 2010; Abdul Razzak, 2015a; 2012a; 2011) and through effective use of ICT (Lee et al. 2017; Abdul Razzak 2016b). Such strategies have been found to enhance achievement levels and content mastery, thus, leading to improved learning outcomes and transferable skills (Baepler et al. 2014; Chan 2003a; Abdul Razzak 2012a and 2011). They also result in deeper learning, especially when implemented prior to, rather than after, lectures or

required readings (Brant et al. 1991; Schwartz and Bransford 1998; Kapur and Bielaczyc 2012; Westermann and Rummel 2012).

As teachers frequently resist implementing independent AL strategies in their classrooms (Bonwell and Eison 1991; Saydam 2009; Anagun 2018), researchers argue that they should be encouraged and facilitated to prepare learners for the shift from conservative teacher-centred environments to student-driven ones (Yasmin et al. 2019; Zou et al. 2015). In authoritarian cultures, in particular, such as the Asian ones (e.g. Pakistan, India, West Asia including Bahrain and other GCC countries), where students' respect for elders and teachers is imperative, teachers must be guided and trained at two levels: academic and attitudinal (Yasmin et al. 2019; Kingston and Forland 2008; Yuen 2010). This is because they have the responsibility of changing learners' attitudes from being dependent upon the teacher to being more autonomous, and proactive. Such a change may be initially confusing for students (Dekker and Fischer 2008) and, therefore, continuous support and encouragement of students by teachers is essential (Chung 2013). In addition, it may be confusing for teachers too.

Teachers' beliefs and attitudes are a key factor affecting classroom practices (Fullan 2011; Abdul Razzak 2014) and for this reason, researchers argue that if constructivist pedagogies such as active student-driven learning are to be successfully adopted, opportunities to realign beliefs are critical (Brand and Moore 2011; Anagun 2018). It follows that teachers themselves must be good examples and uphold beliefs and attitudes of independence and autonomy, to be able to successfully change the attitudes of learners and make them more independent, self-directed, and responsible for their own learning. The researcher's publications (e.g. Abdul Razzak 2011; 2012a; 2015a) demonstrate how she attempted to be such a good example, as in them she reports on classroom activities that she designed for her students, and which engaged them in ample opportunities of independent student-driven learning and self-reflection on independence in learning, which is essential for them to track their own progress and enhance it over time (Meyer et al. 2008).

Additionally, research indicates that to be more capable of managing independent student-driven and constructivist learning environments for today's learners, teachers must possess, besides their basic teacher-preparatory foundation, 21st Century skills; relevant

and timely information; as well as knowledge and use of digital and/or media technologies (Anagun 2018; Kurt et al. 2013; Abdul Razzak 2013b). This will help them develop students' ability to construct their own knowledge by means of searching, finding, evaluating, analysing and integrating information, which is usually facilitated and enhanced through the use of ICT. The researcher argues further that school leaders as well need to possess such skills and related knowledge (Abdul Razzak 2013b). ICT, digital media, and /or e-learning facilities have been found to be effective student-driven learning resources (Nortcliffe 2005), through which more flexible and varied modes of instruction (e.g. blended learning), delivery, and guidance have become possible especially in higher education (Monk 2015).

Enablers and Barriers of Student-Driven Learning

In summary, several factors either facilitate or impede student-driven learning (Douglass and Morris 2014). The researcher considers a facilitator any aspect or condition that helps create an environment that promotes and supports such learning, and a barrier one that does exactly the opposite. Facilitators might include students' understanding of their own learning needs and goals and their motivation; good organization from school administration in terms of assigning teachers' workload and duties as well as student-to-teacher ratios; access to technology resources and facilities; and incentives for student involvement. Whereas, potential barriers include teachers' lack of enthusiasm and support; large classroom sizes; insufficient access to technology; poor curriculum design; and rigid assessment methods.

With this, in addition to the issues in education in Bahrain identified in the researcher's publications and discussed above (Abdul Razzak 2013b; 2013a; 2014; 2016b; 2016a), the dominance of challenges to independent student-driven learning in the Bahraini educational system, as well as the need to overcome them, becomes clearer. Given that the issues in Bahraini education identified through the researcher's publications were earlier shown to be common to those mentioned in research from Bahrain and other parts of the world, then it follows that they are not unique (e.g. Hayes 2018; Al-Ammary et al. 2016; Roberts 2014; Wiseman and Al-Bakr 2013; Lam 2013; Jones and Punshi 2013; Stock and Koeppel 2012; Papaioannou and Charalambous 2011; Totolo 2011; Donn and

Almanthri 2010; Arend 2009; Cheong and Cheung 2008). This also shows that the researcher's findings are well-supported through the works of others in similar research contexts.

Realizing these issues and challenges early on while teaching at the BTC, the researcher tried to respond by using AL pedagogies in her classrooms, elaborated on below.

Researcher's Publications in Response to Impediments of Student-Driven Learning

Deep learning and AL strategies are subthemes in the researcher's publications, where deep learning is represented as a desired outcome and AL strategies as the tools to achieve it. The researcher's publications on role-playing, PBL, and e-portfolio assessment (Abdul Razzak 2011; 2012a; 2015a respectively) all confirmed the link between AL strategies and 21st Century skills, independent student-driven learning, and deep learning. For example, the findings of the PBL study "showed overall a high degree of teamwork, communication, planning, information-processing, and critical thinking on the part of the students" (Abdul Razzak 2012a, p.139). Through PBL, students were also given the opportunity to read more, make meaningful connections, and be responsible for their own learning (Abdul Razzak 2012a, p.140). Results also indicated a high satisfaction rate amongst learners toward PBL, as well as improved learning outcomes, with the development of competencies needed for robust professional teaching practice.

The results also suggested interesting implications related to teacher preparatory colleges and educational reform, namely that PBL training in the form of workshops should be provided to in-service teachers by the BTC and preferably in their schools to reach a wider audience of teachers. A second important implication is that training should not only focus on teachers practicing how to carry out PBL; instead, it should also guide them on how to design, integrate, and assess PBL activities in different curricular areas.

Similarly, the publication on role-playing, where students were required to persistently employ their meta-cognitive and self-regulative skills, indicated high student engagement (Abdul Razzak 2011). In addition, students generally learned to empathize better with others and to be more open-minded and willing to take intellectual risks, through which they develop new ways of working and learning, without worrying about

making mistakes or sounding foolish. However, gender differences existed due to some cultural specificities of the country and the schools, but despite their significance, what was more important were their implications. These implications could inform BTC about how to design instructional activities and introduce pedagogies and innovative T&L methods that are more culturally acceptable to schools in Bahrain.

The publication on role-playing also carried implicit implications for Bahraini schools (Abdul Razzak 2011). In particular, with the new educational paradigm, and with newly qualified teaching practitioners entering practice, the school culture, including its leadership and management, need to be prepared to welcome and embrace innovative T&L methods (primarily those of independent student-driven learning) brought in with the new teachers, and to make considerable changes in the process.

Finally, the researcher's publication on e-portfolio also indicated the strong link between AL strategies and the enhancement of skills relevant to the 21st Century (Abdul Razzak 2015a). Here, the impact of an integrated e-portfolio model (IEM), which was originally introduced by the researcher at BTC in 2012 to help ensure a more successful and effective e-portfolio experience, was assessed. An integrated model is one in which everything in the learning experience or journey comes together, in this case: technology, coursework, teaching practice, BTC competencies, and skills. This integration is through students' utilization of a technology-based e-portfolio system, to showcase selected samples of their achievements from the different courses and teaching practice sessions they complete. More importantly, however, the achievements are ones that the students consider, based on critical reflection, to be among those that had contributed the most to their achievement of the BTC competencies. In this integrated model, students' critical reflections on their achievements are mandatory and are considered graded assignments, which their course instructors allocate only a small percentage of marks to; as, the purpose of the marks is really to motivate the students to complete and turn in their reflections.

In addition to utilizing the e-portfolio system in this way, the students must complete a capstone project in their last semester of enrolment, involving the development and delivery of a presentation before an examination panel. In this project, students present their e-portfolio visually; orally evaluate and justify its contents; and demonstrate the cohesiveness of the selected artefacts and how they collectively contribute to their

achievement of *all* the BTC competencies prior to graduation.

This reveals the added value of the IEM compared to the previous model implemented at BTC since the founding of the college, where the e-portfolio was continuously treated in isolation and separately from most of what was going on in classes or in teaching practice sessions. At that time, it was left to students to select pieces of work from their courses, without monitoring or guidance from faculty members about how to reflect on works or on what basis to decide what should be included in the e-portfolios. There was also no emphasis on linking this whole practice to BTC competencies, which left the students quite uncertain about the whole purpose or meaning behind the e-portfolio assessment. This, in turn demotivated most of them from taking this graduation requirement seriously.

The researcher's e-portfolio publication showed that students had many opportunities, through the IEM, to practice and acquire skills that they may not always get a chance to acquire in many classes due to factors highlighted above. The IEM also enhanced students' awareness of the BTC competencies, with which they are expected to graduate; increased their respect and appreciation for the cohesiveness of the BTC academic programmes; improved their communication and critical reflection; and strengthened their organizational and problem-solving skills (Abdul Razzak 2015a). Despite this there continued to be some deficiencies in students' performance, mainly in the form of some e-portfolio reflections that were still lacking in depth and criticality, as was mentioned earlier in Theme 2.

As a result, the publication recommended greater integration of activities to support the development of HOTS in all classes at BTC, to better prepare students for producing deeper e-portfolio reflections.

Concluding Remarks on Theme 4

Theme 4 discussed the value of student-driven learning in the context of Bahrain, particularly for the development of 21st Century teaching practitioners, as reflected in some of the researcher's publications. Such discussion is beneficial in the long term for all stakeholders. It is advantageous for BTC pre-service and in-service teachers because it

suggests for them that the development of independent self-driven learning and 21st Century skills extends beyond the confines of the classroom and to pedagogic practice. This will encourage them to be more open-minded and receptive to new ideas, explore such skills, and to have enough confidence to take educational risks, engage in discussions, and challenge their own ideas and perceptions. It will also empower them to trust their own voice and make their own decisions when it comes to improving things they have control over in their schools and everyday life.

The empowerment of teachers through independent self-driven learning is actually one of the messages that the researcher wanted to communicate through her research. This is obvious, for example, in her insistence on teachers having autonomy to drive improvements through conducting action research in their classrooms. Such empowerment will ultimately benefit the students they teach in the future. These teachers will then model directly or indirectly this type of valuable learning approach alongside the beliefs and attitudes associated with it, which students can then apply, practice, and develop themselves. By doing so, the students will be able to attain higher achievement levels and develop the competencies and dispositions needed for success in the 21st Century. This will serve as one of the indications of school improvement in the right direction and, simply, the achievement of one of the major goals of the MoE.

Yet, for all this to happen, the right type of environment, with capacity building opportunities supportive of strategies and methods falling under the category of independent student-driven learning (e.g. AL strategies), should be created and sustained in schools by the MoE, as mentioned in the previous themes.

Despite the centrality of independent student-driven learning as a potential response to challenges in the education system of Bahrain, an important question remains. This relates to whether or not this approach is sufficient, especially in light of everything Bahrain is trying to achieve through its economic vision.

In the next section, the researcher reflects on this question, as well as on other related issues. She also envisages what is still needed in terms of governmental initiatives, policies, and projects to produce better prepared teaching professionals, who can contribute more to pushing educational reform and school improvement forward.

3. Reflections and Moving Forward

It is important to highlight that despite the AL strategies implemented and studied by the researcher and by a few of her colleagues, the impact of her findings should not be overstated, as her studies are small in size and were not intended to be generalizable. However, they do provide findings that may be relevant and valuable to others working in similar circumstances within education. Nevertheless, to help in fulfilling the ambitious reform objectives of Bahrain, AL strategies and research of relevance need to be implemented more widely, with a focus on identifying the specific challenges and proposing practical solutions for their resolution. What would prove to be especially beneficial in this respect is the drafting of a related national agenda for such implementation and research in all educational institutions of the Kingdom, including schools, which are currently inaccessible for researchers. Such a national agenda should be easy to draft, given the already existing endorsement of AL strategies in Bahrain through the policies, school improvement projects, and other reform initiatives (e.g. BTC, BQA).

3.1 The Need for Consistent Implementation of Active Learning Strategies and Action Research

The main issue, as we have seen earlier, is the lack of consistent and comprehensive implementation of AL pedagogies that can lead to the desired development of HOTS and other 21st Century skills, including independent student-driven learning. This issue was confirmed through the findings of the limited research undertaken in schools in Bahrain, mainly through the BQA reviews (BQA Annual Report 2018). These reviews are highly credible due to their rigid triangulation methods adhered to in data collection. However, they may not achieve the depth that could be attained through empirical qualitative research (e.g. field studies, phenomenological research, case studies) or, even better, action research conducted by the teachers themselves (Borgia and Schuler 1996).

Action research has been found to enhance teachers' understanding of their professional practice as well as of themselves as professionals (Ryan 2011). This, like qualitative research in the field, can lead to a more accurate discovery and identification of the underlying reasons behind the often-inconsistent implementation of strategies. Moreover, as one of the main aims of action research is to improve professional practice (Noffke 1997), this can also help with addressing these reasons and with developing relevant mitigation plans for improvement. However, since action research is an emancipatory practice and cannot be carried out under authoritarian pressure (Mckernan 1991; McNiff 2005; Stringer 2008), then it follows that teachers and head teachers can fulfil this aim only if they are provided with enough autonomy, to at least take control of evaluating their practices and to decide on their actions (Abdul Razzak and Albaker 2015). In the context of Bahrain, the researcher believes that the government could benefit from including greater autonomy for teaching practitioners and school leaders as a part of its current reforms and related policies.

Thus, although implementation of AL pedagogies in Bahrain's education comprises one approach in the right direction, this implementation needs to be supported by governmental policies, as well as by rigorous and applied research. This research must yield practical recommendations that can be directly translated into actions in the research contexts themselves (e.g. classrooms, schools) (Abdul Razzak and Albaker 2015). Capacity building relevant to such research might empower teachers and head teachers to purposefully initiate and engage in research activities within their institutions. For, as Elliot (2001) argued, to bring about change when introducing a new educational practice, changes in both process and teachers are essential.

Capacity building can facilitate the necessary changes in teachers; however, any capacity building must be evaluated in terms of its impact on teachers' and head teachers' practices within the schools (Abdul Razzak and Albaker 2015). For this to be valid, it would make more sense that it be carried out by those who provide the capacity building from the beginning or at least by someone of equal expertise. This constitutes a problem in the context of Bahrain since the little action research capacity building currently in place in the Kingdom is held by university professors from the BTC, who are the same teacher education researchers denied research access into schools. Consequently, with the

currently rigid MoE restrictions on research in schools in the Kingdom of Bahrain described under Theme 1, a reconsideration of the relevant rules and regulations is necessary, if any national agenda around action research on AL strategies is to be developed and implemented.

3.2 The 'Six Cs' and Other Necessary Types of Skills

It is important to note at this point that AL strategies constitute mainly pedagogy or the methodology of teaching. Education, however, is not just comprised of pedagogies; it includes curriculum content focusing on transferable knowledge and skills as well as skills for learning. In the case of robust deep learning, knowledge and skills are not acquired out-of-context or separately from action (Fullan and Scott 2014). For facing 21st Century challenges and achieving sustainable development in Bahrain, what is needed is the implementation of AL strategies supported by policies, research, and knowledge and skills that are in-context and coupled with action. Based on the researcher's analysis thus far and, supported by the arguments of other researchers (e.g. Fullan and Scott 2014; Claxton and Lucas 2013), the skills that are crucial for surviving and thriving in this age and time are ones that develop graduates who are described as: sustainability literate in different life aspects; change implementation savvy; inventive and creative; and clear on where they stand on tacit assumptions driving the 21st Century agenda (Fullan and Scott 2014).

These skills, together with relevant knowledge, are consistent with the idea that, fundamentally, one of the many aims of education is the physical, intellectual, emotional, and ethical integration of learners into experienced, insightful, and well-rounded individuals, to form a learning society. Fullan and Scott (2014) suggest that in such a society, learners develop into citizens capable of collaborating to analyse what is happening and respond appropriately, irrespective of its complexity, and shifting human and technical context of real-world practice. To become such learners, students need to develop what Fullan and Scott (2014, p.6) call the 'Six Cs', which are a small set of academic, personal, and interpersonal qualities or skills. They include: *character* (ethical and personal effectiveness), *citizenship* (global citizenship), *collaboration* (teamwork), *communication* (fluency with diverse groups), *creativity* (entrepreneurship and novelty),

and *critical thinking* (analysis, synthesis, and knowledge transfer to real-world situations). Learners with such qualities are "naturally capable and competent under all conditions" and know how to rely on themselves in a complex and uncertain world and can help others do the same (Fullan and Scott, p.8).

To summarise, by emphasizing AL as necessary for developing skills such as the Six Cs and for generating independent and competent graduates, we are simultaneously adopting Spohn's (2003) observation that we are more likely to act our way into new ways of thinking than think our way into new ways of acting. This implies that by turning our classrooms mainly into 'Learning by Doing' environments (John Dewey 2016), where reflection in-action and on-action takes place, as emphasized by Schon (1983), we are transforming our learners into better thinkers and innovators. Learning by doing is not undertaken in abstraction but rather in connection to content to be learnt. Realizing this, the researcher could not but wonder what might be considered as 'content'?

Through her work on this commentary, she noticed that several researchers argue that, for the purposes of sustainable development, the content should not be related to just one disciplinary area, and suggest instead an interdisciplinary problem-oriented approach to learning (Fullan and Scott 2014; Mossman 2018; Beachy 2011). This approach focuses on tackling authentic problems that mirror the complexities of real life (e.g. Bursztyn and Drummond 2014; Wagner 2011). Additionally, she was able to identify the commonalities shared between interdisciplinarity and her own Aristotelian view or philosophy of education, and between it and her beliefs on school improvement and educational reform as well. So, although she had never planned for interdisciplinarity to be one of her approaches to learning and it was only arrived at retrospectively, she developed toward the end of the commentary, alongside other scholars (e.g. Mossman 2018; Bursztyn and Drummond 2014), the conviction that one way to make the utmost use of the opportunities of the current Information Age and to achieve sustainable development is through an interdisciplinary, problem-oriented education. As a result, as will become clearer in the subsequent paragraphs, she decided to include interdisciplinary problem-oriented approach to learning as an important recommendation of her commentary.

Such interdisciplinary education can provide students with a multidimensional skills' foundation consisting of critical, constructive, and systems thinking;

communication; teamwork and collaboration as well as other skills with tangible applications (Mossman 2018; Tarrant and Thiele 2016). Such skills are employed and enhanced through opportunities in which students tackle authentic problems that mirror real complexities and experiences. This makes such experiences more natural and manageable and facilitates knowledge-transfer to real world settings and problems (Brown and Calnan 2011; Repko et al. 2017).

Based on the aforementioned, interdisciplinarity empowers students to thrive in their work and life and to become, not just national social and professional actors or citizens, but also global ones capable of dealing with and adjusting to changes irrespective of time or place (Okogbaa 2017).

Additionally, reflection is an integral component of interdisciplinary education since interdisciplinarity does not refer only to the integration of disciplines (Repko et al. 2017) but also to the integration of the insights drawn from different disciplines- i.e. the integration of one's reflections- about a certain issue. The aim of this integration is to create common ground among the different disciplinary insights about the object or concept under study and to understand them more comprehensively. This implies that interdisciplinary integration is a metacognitive process by which one critically analyses and evaluates (i.e. reflects on) one's own and others' different disciplinary insights (reflections), to reach a more holistic, higher level of comprehension. This is the definition relied upon here.

Scholars claim further that learning needs to be not only interdisciplinary but also trans-disciplinary in order to be more holistic (Fullan and Scott, 2014). Trans-disciplinarity cuts across disciplines and is comprised of interdisciplinarity combined with participatory approaches to achieve common goals, usually the solution of a widescale problem (McGregor 2004). So, trans-disciplinarity involves two ingredients. The first is the synthesis of knowledge and methods from different disciplines, for the generation of new knowledge in the form of new applications or analyses or even entirely new disciplines (*interdisciplinarity*) (Nicolescu 1997). The second is the involvement of non-academic but equal participants in the process, to form a coherent whole when addressing largescale issues.

The researcher, however, does not consider such a trans-disciplinary approach as currently suitable in the Bahraini context. She regards it a step that the education systems in the whole GCC region are not yet ready for. As was explained in Theme 2, these systems are still far from building 'knowledge production capacity' or from creating opportunities for innovation (Luckin 2008; Wiseman and Anderson 2012), even within one discipline, let alone from different disciplines. Upon scrutiny, this means that to embrace trans-disciplinary ways of working, the challenge will be for them to first adopt interdisciplinary approaches.

What the researcher finds intriguing, however, is that none of the MoE Bahrain school improvement projects reveal interdisciplinary approaches per se. Likewise, none of the BQA frameworks or BTC guiding principles do so; although, values of holistic education are embedded throughout. This may, therefore, constitute a critical gap in the Kingdom's educational reform, which may need to be addressed quickly, so as not to slow progress in improvements and positive change. This gap may also be a contributing factor behind the disappointing results yielded by the BQA school reviews after ten years of reform, where nearly a third (32%) of schools were judged as 'inadequate' (BQA Annual Report 2018). As per the BQA, which is a respected and credible authority in the country, this percentage is a matter of concern and is not in line with the Kingdom's aspirations and vision (BQA Annual Report 2018). Similarly, the gap may be one of the factors contributing to the result of the 2017-2018 BQA reviews of higher education programmes, where out of seventeen programmes only two received a positive result of 'confidence', meaning that they fulfilled quality assurance standard requirements (BQA Annual Report 2018). These requirements centre on the programmes' fitness for purpose, efficiency, academic standards, and effectiveness, as per the relevant BQA framework in effect.

3.3 Partial Interdisciplinarity

It may seem farfetched to consider that lack of focus on interdisciplinarity may be partly behind the perceived underperformance of academic programmes or educational institutions in Bahrain. If the claim were that lack of interdisciplinarity is the only area of concern in the educational system of Bahrain, then that would be correct. However, it is not, as is clearly indicated in this commentary, where reference to several areas of

improvement related to pedagogies, management issues (e.g. class sizes; resources; facilities), policies (especially those related to research), and attitude and culture (e.g. conservative teachers) are made. Also, if interdisciplinarity is narrowly understood, then the researcher's claim would be unsound. A broader understanding of an interdisciplinary approach cannot be achieved without first linking the term to the concept of disciplinarity and the definition of discipline (Augsburg 2016).

Due to its comprehensiveness, one of the definitions of discipline often cited in the literature is that of Klein (1990). It views a discipline as the tools, methods, procedures, exempla, concepts and theories, which together coherently account for a set of subjects or objects. In the definition, these are viewed as being dynamic, since they are shaped and reshaped with time, based on intellectual demands related to them and also based on external contingencies. In this sense, a discipline has a particularity to it, organising experiences according to a particular worldview. Similarly, Gardner (2000) emphasizes that a discipline frames the way we view the world, it does not lie in the theories, facts, and concepts found in textbooks, national standards, and students' assessments but rather in the ways of thinking that practitioners develop and use to make sense of the world.

It follows that each discipline views issues, problems, and phenomena in distinct ways and develops theories and explanations about them based on its own assumptions and viewpoints (Augsburg 2016). Considering this definition of disciplinarity, interdisciplinarity can refer to the act of combining different or integrating different disciplinary perspectives or insights, usually for addressing problems and questions that cannot be handled through only one method or approach (Augsburg 2016; Klein 1990). Furthermore, interdisciplinarity creates a sense of community that is both purposeful and result-driven, aiming at integration of ideas with others to form an end-product or reach a certain solution (Rhoten et al. 2009).

Augsburg (2016) defines interdisciplinarity as where interdisciplinary teaching, learning, understanding and research are applied. Klein and Newell (1996) add that interdisciplinarity in education is process-oriented and involves the integration of disciplinary insights and perspectives as well as problem-solving for comprehensive understanding. While interdisciplinary studies in the sense of students studying more than one discipline or field of study and earning interdisciplinary degrees may be sometimes

possible, it is not what the researcher is arguing for here. Nor is it what she considers to be the best fit for bringing forth the necessary improvements in Bahrain's educational system.

Instead, drawing on interdisciplinarity studies, the researcher proposes the introduction of a new educational enhancement project at the MoE level, with relevant policies and procedures that mandate the strategic planning for, and the implementation of, *partial interdisciplinarity* in all educational institutions of the Kingdom. Partial interdisciplinarity refers to the adoption of at least one of the elements included in full interdisciplinarity (Augsburg 2016; Klein and Newell 1997; Mansilla and Duraisingh 2007), which are:

- having complex problems or issues to address;
- utilizing different perspectives from different disciplines;
- integrating different disciplinary insights to form a more comprehensive perspective;
- using this comprehensive perspective to advance knowledge or create an end-product; and finally
- correcting any issues in the disciplinary approach.

In this case, the researcher would emphasize at least the second element, which is the utilisation of different disciplinary perspectives since, of all the elements, this one best captures the essence of interdisciplinarity. The project is envisioned to consist of three main goals: the development of interdisciplinary understanding; the systematic and consistent application of integrative learning; and the development of integrative interdisciplinary thinking. Tables 3, 4, and 5 each summarises one of these goals, highlights tools and methods for achieving it, and discusses issues or challenges related to it.

Table 3

Goal # 1	Description	Tool/Methods for achieving the goal	Issues/ Challenges (if any)
The development of interdisciplinary understanding	Educational institutions should work on developing in learners the capacity to integrate ideas, concepts, methods, theories, and ways of thinking from two or more disciplinary perspectives	➢ Schools can adopt, for example, curriculum integration between subjects; collaborations of teachers teaching the same students; formal team teaching; professional learning community (PLC) meetings for coordinating topics and learning experiences; action research for teachers to test new collaborations; and invited guest speakers from different disciplines to collaboratively tackle the same issues. ➢ Higher education institutions can rely on, for example, project work and research requiring analyses from more than one disciplinary perspective; or they can also emphasize the inclusion of links to other disciplinary perspectives in each curriculum/course.	None

Goal 1 of the Partial Interdisciplinarity Project

Table 4

Goal # 2	Description	Tool/Methods for achieving the goal	Issues/Challenges (if any)
The systematic and consistent application of integrative learning	Educational institutions should stress on the synthesis of academic experiences with real life situations throughout the institution. Here students should connect their learning not only with their own life situations but also with those of other people.	➢ Educational institutions can incorporate, for example, case studies, real life examples, problem-based learning, role-playing, simulations, project-based learning, internships, fieldwork or field trips. ➢ Integrative learning is not acquired effortlessly (Huber, Hutchings, and Gale 2007). It requires work from both teachers and students. Teachers need to create appropriate and sufficient opportunities, and provide the support needed, for it. ➢ Students need to reflect on their integrative learning experiences and connections, and need to study their reflections in an academic manner (Augsburg 2016); for example, through linking them back to disciplinary theories, concepts, and methods or analyzing them and having discussions about them. ➢ Currently, in Bahrain, as explained earlier, learners' reflections are not deep where they exist and nothing in the related research on the topic indicates cases of where students are required to study their reflections academically. Accordingly, rethinking how learners' reflections are applied and utilized is necessary.	The main challenge here relates to how to be process rather than product-oriented. As, the issue of importance is not the connections that students make between their studies and life. Rather, it is the challenge of making sense of contrasting and/or conflicting insights by integrating them into a more comprehensive view or understanding of the situation with all its complexities (Newell 2010).

Goal 2 of the Partial Interdisciplinarity Project

Table 5

Goal #3	Description	Tool/Methods for achieving the goals	Issues/Challenges (if any)
The development of integrative interdisciplinary thinking	This type of thinking is the meeting point between interdisciplinary studies, understanding and integrative learning. It involves several cognitive capacities, such as the ability to: ▪ Come up with meaningful questions about complex issues or problems ▪ Find and utilize multiple sources of information and perspectives ▪ Compare and contrast the multiple sources to identify various patterns and connections; and ▪ Create an integrative framework as a lens for viewing phenomena and problems, in order to arrive at holistic understandings of them (Klein 2005).	➢ Educational institutions can incorporate teaching students how to: pose good and meaningful questions; use different technologies for accessing information sources; evaluate multiple sources of information, analyze and synthesize them; conduct research; think critically, make meaningful connections, and construct and create new knowledge.	None

Goal 3 of the Partial Interdisciplinarity Project

A close look at the three goals explained above highlights the different HOTS, AL strategies, independent student-driven learning opportunities, Six C qualities, meaningful connections and deep learning, and 21st Century skills that are already incorporated within, and promoted through, the proposed Partial Interdisciplinarity Project. This explains the researcher's recommendation for interdisciplinary education, especially that which focuses on tackling authentic problems that mirror the complexities of real life.

This type of education requires students to be responsible for their own learning, managing it, reflecting on it, and monitoring its progress, which explains why the researcher considers Theme 4 (*Emphasis on Student-Driven Learning*) to include potential solutions to the challenges embodied in Themes 1-3. This approach within teaching is also what contributes to the development of teacher candidates' learning skills, which they need for facing the complex challenges and dynamic transformations of this age and time. More importantly, by empowering learners to view and tackle phenomena and issues from an integrated framework of disciplinary perspectives, this type of education seems to constitute a more balanced model when compared with other educational approaches (e.g. the economically-driven ones). This renders interdisciplinary problem-oriented education

as being a more effective model in contributing to sustainable development in all aspects affecting humans and their environment. Thus, according to the researcher, this model should be the future of education for Bahrain.

Were this model to be implemented, however, it should, from the onset, be complemented by a well-planned, highly specific, and carefully directed research agenda and strategy. The purpose of such an agenda and strategy would be two-folded, as they would help guide the evaluation of this model's effectiveness and contribute to its development and improvement as it matures and also help in deepening understanding on matters related to interdisciplinarity. Such a research agenda is essential as a precautionary measure, to prevent the current status of variability surrounding research related to educational reform in Bahrain, elaborated upon in section 4 below.

4. Reflections on Being a Researcher in a Context of Educational Reform

4.1 Pace of Change

Since the beginning of the reforms in Bahrain, several initiatives and projects have been introduced in succession. This, as a result, has required many changes and developments from those involved in, or affected by, the reform. Not only that, but with the reform projects came increased responsibilities for the key reform stakeholders. This was sensed by the researcher herself through her work at the BTC and through her various dealings with diverse students, which included many in-service teachers and leaders from the schools. Since the reform's inception, the pace of change for all those involved has been rapid and, during the researcher's classes, teachers and school leaders were clearly vocal about the pressure that was being exerted on them. Even when serving as research participants in the researcher's studies, they did not hesitate to express their frustration with the plethora of responsibilities the reform projects were adding to them (e.g. Abdul Razzak 2016a; 2015b).

4.2 Heavy Workload and Critical Responsibilities

School teachers and leaders have not been the only ones finding it challenging to keep up with the pace of change. Those interested in reform-related research, such as

faculty members working in HEIs or educational professionals filling positions that directly or indirectly impact the progress of the reform projects, have also been affected similarly. The researcher is one example of this, given the fact that she has had the opportunity to both work as an HEI faculty member as well as an academic consultant at the Directorate of Higher Education of the BQA. In both capacities, she has always been an active researcher despite the critical responsibilities that she now holds in her current position at the BQA, (a national authority of education and training reporting directly to the Cabinet of Ministers), and the high teaching workload that she and other faculty members were assigned at the BTC. As per the recent BQA review report of the BTC's Bachelor of Education programme, the high teaching workload at the College has resulted over the years in only a modest research outcome limited to a small number of faculty members (BQA 2016).

4.3 Lack of Strategic Guidance

The heavy workload and critical responsibilities are only part of the story when considering challenges faced during conducting research on education in Bahrain, with the vibrant context of educational reform that it currently represents. Such research becomes more challenging with the absence of suitable guidance in terms of a research agenda or strategy at the national level, or even at the college level, which is specifically relevant to the investigation and evaluation of reform initiatives, projects, their implementation, progress, challenges, outcomes, and impact. This leaves researchers, thus, who are directly related to educational reform because of their position or job, without real direction when selecting the foci of their research. As a result, we find them, just as the researcher did, setting their own research aims and focusing more on what they consider as important or on what they are personally interested in investigating.

Certainly, this situation does sometimes result in positive outcomes, especially when the aims align well with the national reform needs. However, there remain cases where these are driven purely by personal interests such as academic promotion, irrespective of whether the research informs educational reform.

This summarises the researcher's main experiences in her decade of research on education in Bahrain. Her journey toward her present status as a researcher has not been

entirely smooth as outlined above. Despite this, her research has contributed to knowledge and scholarship, in the context of the Kingdom, the region, and internationally, as discussed below.

5. Contribution of Research Works to Knowledge and Scholarship

This section presents a critical account of how the publications included in this commentary make a coherent and significant contribution to knowledge and scholarship locally, regionally, and internationally. This account is partially provided in a visual display format represented in Table 6 as Appendix G (pp.141-182), which shows only a sample of published works that cite the researcher's publications. These works were selected based on ease of access and convenience.

The researcher's publications in the table, are listed chronologically in descending order (from newest to oldest), and in the subsections below is a brief discussion of their collective contribution based on an analysis of the information in Table 6 (Appendix G, pp.141-182). First, it is useful to describe the frequency of citations for each publication (to January 2020) based on Google Scholar citations, as presented in Table 7.

Table 7

Researcher's Publication (Publication Date + Short Title)	# of Citations
2016a (Teacher's Experiences with School Improvement Projects)	9
2016b (Strategies for Effective Faculty Involvement in Online Activities)	23
2015a (An Evaluation of an Integrated E-Portfolio Model)	4
2014 (In-Service Teachers Attitudes Toward Technology Integration)	9
2013a (Effectiveness of a University-Based Professional Development Programme)	11
2013b (Challenges Facing School Leadership in Promoting ICT Integration in Instruction)	32
2012a (Problem-Based Learning in the Educational Psychology Classroom)	26
2011 (Role Playing in the Classroom)	1

Google Scholar Citations of Researcher's Publications

5.1 Analysis of Citing Literature by Location

With respect to the publications that have cited the researcher in the sample provided in Table 6 (Appendix G, pp.141-182), they come from many different parts of the world, as demonstrated in Table 8 which displays the number of citing publications in the sample by country. Some were not published in English and were not included in the sample mainly because the researcher was unable to understand them or conclude how they made use of her publications. Nonetheless, internationally, there were reasonable numbers in English and surprisingly more than those at the regional level. The researcher was expecting to find more from Saudi Arabia, geographically the closest to Bahrain and with special ties at different levels. Saudi Arabia is also the largest GCC country in area with the biggest number of universities and greatest research output (Meo et al., 2016).

Locally, the researcher had also expected to find more citations in Bahraini research; however, there were only three works in the sample she selected. One was a journal article (Eksail and Afari 2019) and the second was a doctoral thesis. The article used information from her cited publications to describe its own research context (the Kingdom of Bahrain) with an emphasis on describing ICT integration. The thesis (Alzayed 2016) used her cited publication in a variety of ways, either for comparative purposes or for demonstrating a point or as an example for supporting some argument, as is evident in the analysis in Table 6 (Appendix G, pp.141-182). The interesting point of comparison drawn from the citation is that the thesis is the only study in Bahrain on PBL implementation at the secondary school level, while the researcher's cited publication (2012a) is the only study on PBL in higher education in Bahrain not conducted on medical students and in a social science area. Finally, the third (McGirr and Alrayash 2017), was a conference paper focusing on e-portfolios, which cited the researcher's publication 2015a. The citation concerned the researcher's finding that e-portfolio implementation enhances students' organizational and communication skills, which was replicated in the conference paper.

Table 8

Publication Country	Number		Publication Country	Number		Publication Country	Number
Australia	2		Ireland	1		Sweden	2
Bahrain	3		Italy	1		Taiwan	1
Belgium	1		Jordan	1		Thailand	1
Canada	1		Lebanon	1		Turkey	1
China	1		Malaysia	3		UAE	2
Costa Rica	1		Oman	1		UK	2
Egypt	1		Pakistan	1		USA	10
Finland	1		Philippines	1		West Bank & Occupied Palestinian Territories	4
Germany	2		Qatar	1			
Ghana	1		Saudi Arabia	1			
Greece	1		South Africa	1			
Indonesia	2		South Korea	1			
Netherlands	1		Spain	1			

Publications (by Country and Number) in the Selected Sample Citing the Researcher

5.2 Analysis of Citing Literature by Type Plus Relevant General Observations

Types of publications citing the researcher were diverse. There were journal articles, book chapters, conference papers, PhD dissertations and master's theses (see Table 9). The journal articles provide the greatest number of researcher's citations followed by the doctoral dissertations. The researcher is proud of being able to benefit not only researchers but also graduate students through her publications. In doctoral dissertations, several points of information were used from each publication per dissertation, as opposed to journal articles where often a publication was cited only once or maybe twice per article.

Table 9

Publication Type	Number
Journal Article	29
Book Chapter	1
Conference Paper	7
PhD/Ed.D Dissertation	13
Master's Thesis	3
Research Report	1

Publications (by Type & Number) in the Selected Sample Citing the Researcher

As to how the information presented in the researcher's publications has been used by those that cited them, it is easy to see from Table 6 (Appendix G, pp.141-182) that the main contribution was in the publications' introduction and literature review sections (e.g. Porras 2017; Short 2018; Honglin 2018; Jones 2019; Richards 2019; Eksail and Afari 2019; Harun and Shukor 2019). However, sometimes, information in the researcher's publications was used for comparative purposes, for example, to reveal a contrast between it and other information in the scholarly literature, including publications where it is cited (e.g. Alzayed 2016; Tshelane 2015). In other cases, the researcher's findings were used to validate or support other findings (e.g Al-Mubaid et al. 2016; Arar and Abramovitz 2017; Richards 2019; Jones 2019; Mucundanyi 2019; McGirr and Alrayash 2017).

There were also cases where the researcher's publications were inaccurately cited, and the researcher was portrayed as claiming something that she had not said (e.g. Richards 2019; Tshelane 2015). For instance, Richards (2019, p.12) erroneously cited the researcher (2016b) as claiming that "females demonstrate competence and pursue engagement with course materials, team projects, and time management more consistently than their male counterpart". Whilst, Tshelane (2015, p.29), cited the researcher (2014) as claiming that "although South Africa has been free from apartheid for more than 20 years, some township schools are still under-resourced, lag behind

schools in predominantly "white" suburbs, and experience digital exclusion", when the researcher has never referred to South Africa in any of her publications.

5.3 Publications with Greatest Impact

Generally, however, the analysis of the sample of citing literature in Table 6 (Appendix G, pp.141-182) suggests that the researcher's two publications published by Springer New York (Abdul Razzak 2013b and 2016b) have made the greatest contribution to knowledge and scholarship (see Table 10). They both focus on ICT integration in instruction; however, what makes them different from other publications such as Abdul Razzak 2014 and 2015a, is the inclusion of school leadership and the challenges certain leaders face on the job, which is present in both. The 2016b publication involved senior teachers (heads of departments) and the challenges they face from the teachers they supervise, who tend to be generally conservative in their T&L approaches; whereas, 2013b involved assistant principals and the challenges they face in integrating ICT in their schools. Both publications suggested, as mitigation measures, strategies relevant to ICT planning, design, professional development, involvement, and usage in instruction. Thus, it seems that this combination of topics (i.e. ICT and leadership) may be an area of interest and inquiry among researchers from around the world. The attribution 'from around the world' is accurate here since, as evident from Table 6 (Appendix G, pp.141-182), the research works that cited these two publications (i.e. Abdul Razzak 2016b and 2013b) are from a wide range of geographical locations.

Looking more closely, it becomes apparent that these works benefited from the researcher's two publications mainly as follows: making use of the distinction between deep and shallow learning; adopting the researcher's principle that for ICT integration to be successful, knowledge and awareness of all components associated with it on the part of the teachers and school leaders is necessary; highlighting the importance of students' and faculty members' social presence in online learning environments, as emphasized by the researcher; adopting the researcher's belief that student engagement in well-planned, carefully designed, and closely monitored and supported ICT-based and online learning activities can promote critical thinking, reflective analysis, collaborative problem-solving, and deep learning; and utilizing the researcher's finding that the support, guidance, and

encouragement of the school leadership is a strong predictor of teachers' technology use and success.

Another publication that has made a considerable contribution to knowledge and scholarship concerns PBL (Abdul Razzak 2012a). This is clear from the Google Scholar citations (Table 7) and from the analysis in Table 6 (Appendix G, pp.141-182). Analysis showed that the publication was cited mainly to highlight its findings that students are generally satisfied engaging in an AL strategy such as PBL; PBL is effective in improving learning outcomes, enhancing HOTS, and developing soft skills of learners; and PBL can be applied at different levels of education although it is not necessarily suitable for all types of learners.

Table 10

Researcher's Publication (Publication Date + Short Title)	Type	Publisher & Impact Factor	Number of Works Citing the Publication
2016a (Teacher's Experiences with School Improvement Projects)	Journal Article	Taylor & Francis (SJR Impact Factor 0.626)	3
2016b (Strategies for Effective Faculty Involvement in Online Activities)	Journal Article	Springer New York (SJR Impact Factor 2.012)	11
2015a (An Evaluation of an Integrated E-Portfolio Model)	Conference Paper/ Proceedings	IEEE	1
2014 (In-Service Teachers Attitudes Toward Technology Integration)	Journal Article	Sciencepark Research Organization and Counseling (Impact Factor Not Found)	2
2013a (Effectiveness of a University-Based Professional Development Programme)	Journal Article	Taylor & Francis (SJR Impact Factor 1.780)	5
2013b (Challenges Facing School Leadership in Promoting ICT Integration in Instruction)	Journal Article	Springer New York (SJR Impact Factor 2.012)	24

Works in the Selected Sample Citing the Researcher's Publications

To conclude, it is important to note that the analyses of the citing literature is only a sample and does not include all the possible ways in which the researcher's publications may have contributed to knowledge and scholarship. Additionally, not focusing above on publications other than the ones mostly cited in the sample does, in no way, undermine their importance. Due to word limit restrictions, however, the analysis of their contributions in Table 6 (Appendix G, pp.141-182) would have to suffice, and attention now needs to be

diverted to reflecting on individual publications and discussing some methodological considerations related to them.

6. Reflections on Publications

This section contains the researcher's reflections on the publications included in this commentary. These publications involved varying participant numbers and covered a wide range of topics, such as: role-playing in the classroom (94 year-one BTC students as participants); problem-based learning (24 BTC freshman students); school leaders' PD (35 assistant principals or school leaders); teachers' attitude towards technology integration (15 assistant principals and 181 in-service teachers); e-portfolio implementation (100 fourth-year BTC students and 60 faculty members); school leaders' challenges in promoting ICT integration (69 assistant principals); school improvement projects (153 in-service teachers); and online activities for critical thinking and deep learning (42 in-service senior teachers or heads of departments).

The following is a sub-section on methodology, which focuses on specific elements or aspects such as the researcher's approaches in her publications and the steps taken to minimize research bias and to ensure ethical considerations are adhered to in the research. Next, personal observations of the researcher alongside lessons learnt in the process are presented. This includes an explanation of how her research relates to her professional role, as all her publications have implications for teacher education in the context of Bahrain. These reflections are ordered below based on the impact of their outcomes on the researcher (greatest impact first). A detailed overview of each publication is found in Table 11 (Appendix H, pp.183-194), which lists the researcher's publications chronologically from most recent to the oldest.

1.1 Research Approaches: Reflexivity, Credibility, and Ethical Considerations

In the publications included in this commentary, there are clear descriptions of the types of research approaches that the researcher used, with justifications of why she selected them as opposed to other possible approaches. These varied between purely qualitative and a combination of quantitative and qualitative, as will be elaborated on in

the following sub-section. The approaches also included the application of diverse research tools, such as: interviews, focus groups, personal reflections, and questionnaires. However, in no publication was there reliance solely on a quantitative approach. This reflects the researcher's constant desire to interpret and understand the world of human experience, and to discover the reality of things, through the research participants' views, perceptions, background, and experiences. In this sense, her position as a researcher was always interpretivist (Bassey 1999; Creswell 2007: Merriam 1998; Stake, 1995; Yin 2002; Bryman 2004; Bhattacherjee 2012), even when she used a multi-methods approach in some of her publications (e.g. Abdul Razzak 2011; 2014; 2016a).

Considering this, the value of her publications lies in the stories they tell in light of the subjective meanings of their participants. This renders the publications as highly significant, as they can potentially reveal insights about issues that may otherwise be left unexplored or untapped.

This type of research was made possible partly by the proximity that the researcher had to the participants; as, in all her publications, they had been at one point her students. Clearly, having had her own students as her subjects of study could have presented a higher risk of researcher bias (DeLyser 2001; Hewitt-Taylor 2002), where the research could have been potentially skewed due to insider research or a researcher's bias in data collection, analysis, and interpretation (Atieno 2009). However, the researcher was aware of this and highlighted it as a limitation in all her publications. She also remained reflexive throughout her research projects, thoughtfully analysing her experiences, own reasoning, privileged position as a researcher in comparison to the researched, and pre-understandings, to systematically stay aware of how such characteristics may have been impacting the research process and participants. Simultaneously, her reflexivity centred on how the personal aspects and position of the research participants themselves could have been mutually impacting her, as all reflexive researchers are expected to do (Malacrida 2007; Raheim et al. 2016).

Additionally, to avoid researcher bias as much as possible, she also tried to distance herself from the participants when, for example, requiring them to fill a questionnaire. She did this by either keeping the questionnaire online or by relying on a neutral third party to distribute it for her on her behalf. This minimized the chances of the researcher influencing

the respondents in any way. As for ensuring the validity and reliability of the questionnaires or any other similar quantitative rating tool, several steps were taken, among them:

- The use of pre-existing questions (e.g. in Abdul Razzak 2012a and 2014): Questions or items from a previous study in the scholarly literature, which had already been extensively tested when they were first used, were employed, with some customization where necessary, to better fit the research purposes at hand (e.g. Abdul Razzak 2014).
- Reliance on face validity: Questions or items that seemed reasonable for obtaining the information aimed at by the researcher were used and, thus, the research tool in this case had face validity (Mora 2011).
- Reliance on content validity: The contents of the questions or items in the survey tool was also checked, to see if they reflected the main issue being researched and to ensure that no key related topics are left out (Mora 2011).
- The use of participants who are broadly representative of the population: The research tool, whether questionnaire or a rating form, was used on a sample of participants having the same characteristics as the population that the researcher wished to draw conclusions about (Mora 2011).

As for the qualitative tools (e.g. interviews, focus groups), their confirmability and credibility were ensured through a set of different strategies, primarily the following:

- Inviting participants rather than following a strict approach of sampling (Lincoln and Guba 1985): This happened especially when interviews or focus groups where being used in the research. The researcher would randomly select based on set criteria relevant to the study, and invite from a bigger pool of potential participants, a small group to take part in her study; as, she was interested in gaining an in-depth and detailed insight into certain aspects related to them rather than generalizing to the population.
- Conducting member checks: Once the data was collected, analysed, and interpreted, the researcher would verify the data interpretations by going back to the research participants to validate and approve them (Bradshaw

2001; Chandler et al. 2015; Harper and Cole 2012). Examples of this are Abdul Razzak (2012a, 2013b, 2014, 2016a, and 2016b).

- Triangulation: More than one source of qualitative data collection was used, to ensure accuracy of the generated data (Bradshaw 2001; Chandler et al. 2015; Harper and Cole 2012). Examples of this are Abdul Razzak (2012a, 2013b, 2014, 2016a, and 2016b).

Finally, it is important to note that in the case of each study, research participants could not engage in it before first giving their voluntary informed consent to do so. So, from the onset of the study, it was made clear to them that they had the right to choose not to participate in it and that their participation or lack of it had no impact on their course grades. They were assured that all their responses would remain anonymous and will be used only for the purposes of the study. Additionally, the proposal of any research study at BTC, accompanied with its ethical implications form, had to pass through three levels of approval before the researcher could embark on working on the publication. Two of these approvals were at an internal level from the BTC Research Committee and the BTC Dean, and one was at an external level from the ministry's HEC. This is because all the researcher's participants were BTC students and, thus, were considered as MoE employees, including the undergraduate ones; as, they are all financially sponsored by the Ministry.

Now that the research approaches used in the researcher's publications have been clarified, along with the main steps taken to ensure the accuracy, credibility, and integrity of the data collected through them, we turn next to present a few personal observations of the researcher alongside lessons learnt in her research and publication process.

1.2 Methodological Reflections

The researcher always viewed herself as mainly a qualitative researcher. Nevertheless, in some of her publications, she utilizes both quantitative and qualitative data collection tools and analyses (Abdul Razzak 2011; 2014; 2016a). She referred to

them as using a mixed-methods approach. However, as the researcher grew and developed, especially during her work on this commentary, she has reviewed this position and would now consider her research to involve multi-methods rather than mixed-methods. According to Tashakkori and Creswell (2007), mixed-methods research, is where the investigator, "collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study…" (p.4). The key point here is 'the integration of findings' as this is the main difference between these approaches. This clear combination of quantitative and qualitative data and the evident and explicit explanation of how and where the integration between them occurred is what makes the mixed-methods approach distinct from the multi-methods one (Creswell et al. 2011). In addition, the integration is undertaken using defined systematic procedures, executed either through merging or connecting or embedding data (Creswell and Plano Clark 2007). Based on these definitions the researcher now realizes that she used multi-method approaches.

For example, in Abdul Razzak (2011), which focuses on role-playing as an instructional strategy, a quantitative questionnaire was used, as well as students' journal entries and a debriefing session as qualitative tools. The questionnaire aimed at identifying gender differences in students' initial perceptions of role-playing during instruction. The journal entries focused on students' reactions at the introduction of a role-playing activity and afterwards in one of their classrooms. The debriefing session was designed to evaluate their satisfaction with the activity to identify related areas for improvement. Despite the use of these varied tools, the analyses of their findings were carried out concurrently rather than in an integrated approach and each resulted in information that contributed to answering a different research question. Were a mixed-methods approach utilized in this case, one would have expected to find several types of analyses contributing to answering the same research question. Collectively, however, the findings in the role-playing publication and their analyses acted like different pieces of a puzzle, which ended up giving a somewhat complete picture or understanding that the purpose of the research was after.

Similarly, in Abdul Razzak (2014), which focuses on in-service teachers' attitudes towards ICT integration in the classroom, qualitative and quantitative tools were

used to yield findings that would help in answering different research questions. The tools were also employed with different participant groups. Assistant principals were interviewed to collect information on ICT conditions in Bahraini public schools and the principals' perceptions of their teachers' understanding, attitudes, and usage of ICT. Whilst, in a second phase of the research a questionnaire survey was administered with teachers to explore their attitude toward ICT integration and the conditions surrounding its implementation. The analyses of the two sets of findings were carried out in different phases and in relation to two different groups. They were also compared for similarities and differences, but the analyses of the qualitative and quantitative findings were not systematically integrated.

Finally, in the researcher's publication on school improvement projects (2016a), two types of data-collection tools were utilized for answering different research questions. A questionnaire with closed and open-ended items was used to explore in-service teachers' experiences and perceptions of improvement projects. Feedback sheets completed by MoE evaluators of in-service teachers were utilized as a source of data and analysed to reveal teachers' level of HOTS' implementation as part of a school improvement project. The closed-ended items of the questionnaire were analysed both quantitatively and qualitatively; whereas, the open-ended were analysed qualitatively, as with the feedback sheets. The analysis of the open-ended questions yielded information about the challenges and suggestions reported by the teachers with respect to school improvement projects; whereas the closed-ended items yielded information related to the teachers' perceptions regarding: the importance and purposefulness of such projects, the need for them, their clarity, the support provided for their implementation, responsibilities and readiness of those involved in them, alongside the impact of the projects. Analysis of feedback sheets revealed how well teachers were implementing one of the school improvement projects in practice. Again, there is no evidence here of a defined and systematic integration of data sets as found in a true mixed-methods approach. Nonetheless, the collective analyses of the varied data contributed to drawing a more complete picture sought after by the original purpose of the research.

In conclusion, the process of reflecting on her publications has given the researcher the opportunity to understand that even with the similarities between mixed

and multi-methods research, they are different- something she was unclear about before. Despite this lack of clarity at the time of working on her publications, she recognizes the value of having engaged in research studies that involve both quantitative and qualitative approaches, regardless of whether they are mixed or multi-methods. This is because of the opportunity such studies provide for acquiring additional perspectives and insights generally beyond the scope of any single research method (Borkan 2004).

1.3 Altered Perceptions

All the remaining publications included here (Abdul Razzak 2016b; 2015a; 2013b; 2013a; 2012a), are qualitative, involving a range of data collection tools (e.g. focus groups, interviews, reflective exercises, observations). Their qualitative nature allowed the researcher to critically examine the participants' individual experiences and perceptions (Viswambharan and Priya 2016; Tong et al. 2012). This created a rich learning opportunity because she was able to understand phenomena from the perspective of those involved and, thus, to locate herself within an interpretivist paradigm in research. Often, this altered her perceptions and expectations of what she was researching. For example, in her investigation of the effectiveness of the Educational Leadership Programme at BTC in developing school leaders' management and leadership competencies (Abdul Razzak 2013a), she had initially viewed the programme's participants' part-time weekly schedule of two days at the college and three days at their schools as only an organizational tool. However, she was surprised with the magnitude of the changes in the leaders' knowledge, skills, and practices, which were brought about because of attending the programme even if only biweekly. These changes were evident from their focus group discussions and capstone project presentations, where what really stood out was how important the role played by the part-time internship element of the programme in their schedule was to them- something that the researcher had not previously given much attention to.

Another example is demonstrated in her publications on ICT integration (2014 and 2013b). Practicing reflexivity throughout her research projects, the researcher knew that with her background in educational technology, she felt that she had a clear vision of what technology integration in instruction entailed and had an awareness of her

personal experiences and perspectives regarding its role, potential, and implications for T&L. She was also aware of her privileged position in this respect in comparison to her research participants' knowledge. Still, she assumed that practitioners working in Bahraini schools, whether teachers or headmasters, at least had clear conceptions of what educational technology entailed in terms of its necessary components, as was explained earlier in Theme 2. However, exploration challenged this assumption completely, as the need to educate school practitioners about all necessary components of educational technology became increasingly clear, especially in relation to students learning with and through ICT.

There are other examples of perhaps unexpected but interesting results from the researcher's publications, regardless of their research design. These are included, for instance, in the paper on role-playing (Abdul Razzak 2011) in which undergraduate BTC students enrolled in the Bachelor of Education programme were required to engage in a role-playing exercise in one of their educational psychology classes. The aim of the exercise was to encourage active learning in class and to assess if any gender differences existed in the students' reactions toward role-playing as an instructional strategy. Practicing reflexivity, the researcher was aware that Bahrain, in comparison to its GCC neighbours, is an open society and is not as strict on the separation of men and women in public (e.g. universities, work settings). Thus, when the results of the role-playing study revealed that Bahraini men in the study were more reserved and rigid about the types of roles women choose to play than their female counterparts, she was totally surprised as, this was not something that she had anticipated nor set out to examine or challenge. Such a result was important because it revealed a greater complexity with regard to the research context and setting than she had expected. Moreover, this result called for an examination of the ways Bahraini men are brought up to perceive the stereotypical differences between the sexes. Similarly, with respect to gender-related issues, another unexpected finding surfaced in the study on PBL (Abdul Razzak 2012a). Students here reported enjoying working in gender-mixed groups, as a first-time experience, and learning about how the opposite sex thinks and works. This was surprising to the researcher because although she knew that most participants were from gender-segregated schools, she still had not expected that this would be the first time

they had worked closely with the opposite gender. Finally, going back to the role-playing publication, what the researcher also found surprising was how rarely role-playing was being utilized in Bahraini schools despite its many benefits and potential to promote deep and transferable learning (Krain and Shadle 2006; Tomcho and Foels 2002).

Another surprising but also disappointing finding came from the study on school improvement projects (Abdul Razzak 2016a). Here the researcher utilized data feedback sheets completed by MoE specialists who were involved in evaluating teachers' performance in relation to a particular improvement project focusing on HOTS integration in instruction. When analysing these sheets, the researcher noticed the comments of the evaluators appeared to be rather negative. From her perspective, it seemed to demonstrate a lack of good educational practice on the part of the evaluators; as, they included only what they felt the teachers were not doing correctly without referring to what was right. In addition, such negativity could have potentially skewed the analysis and conclusions of her study, especially since the qualitative element partly consisted of an analysis of these evaluations. Despite this, however, the researcher had mentioned nothing about this in her publication when discussing the study's limitations. Adding this point among the limitations of the study is, thus, something that the researcher would have done differently at the time.

In retrospect, another study that the researcher should have usefully undertaken was an investigation of how and why online tools are being used in higher education in Bahrain. When working on her study on strategies for effective faculty involvement in online activities aimed at promoting critical thinking and deep learning (Abdul Razzak 2016b), she had identified an apparent gap in the international literature in relation to this. That was in comparison to the many studies centring on the effectiveness of online tools and the factors impacting their success. It was unclear how exactly such tools are being used or why especially in the context of Bahrain. This was worthy of investigation prior to her 2016b study. With hindsight, it would have made more sense first to research and explore how and why online tools where being used in colleges and universities, before proposing strategies for greater effectiveness of online activities that promote critical thinking and deep learning in students.

Nevertheless, on a more positive note, the researcher is very proud of having made a specific recommendation in one of her publications, which she would not hesitate to make again. This is the recommendation in her e-portfolio assessment publication (Abdul Razzak 2015a) to introduce at the BTC a comprehensive and obligatory course on e-portfolios from students' first year of enrolment in their undergraduate programme. The objective of this course is to serve as the foundation for effective e-portfolio implementation, by helping students in the early acquisition of basic skills such as: accurately explaining the BTC competencies (graduate attributes); writing a reflection; selecting the relevant types of student works that count as evidence of fulfilment of BTC competencies; and justification of their selections. The researcher is particularly pleased she made this recommendation especially since the BTC acted upon it by asking her to personally develop and teach this course for the 2015-2016 academic year, and to date, the course is still being taught, although its impact has not yet been evaluated. Thus, her recommendation and the study behind it demonstrate an example of research that has led to change within the college community, where this change was initiated based on an identification of needs and issues that had to be addressed and rectified, respectively (Unkelbach 2013).

Another example that the researcher is pleased with is the research that she conducted as a follow-up to her study on the challenges facing school leaders in promoting ICT integration in instruction in the schools of Bahrain (Abdul Razzak 2013b). In the follow-up study (Abdul Razzak 2014), the researcher focused on ICT integration from the perspective of school teachers. Thus, she provided a further analysis of a phenomenon that had already been revealed in the first phase. The study also clarified an aspect that could have easily been misconstrued from the results of the earlier one, as the two studies yielded parallel results with respect to the "quality and availability of technological resources, technical support, technology-related training and PD opportunities, and relevant leadership support in Bahraini public schools," (Abdul Razzak 2014, pp.69-70). They also indicated a consistency with respect to teachers' incomplete understanding and application of the concept and process of ICT integration.

However, when it came to teachers' attitudes toward ICT integration, a critical discrepancy was spotted. In the earlier study the school leaders' perceptions had suggested that teachers integrate ICT only when it is imposed on them and that they are reluctant to change and adopt innovative ICT solutions (Abdul Razzak 2013b); whereas, the teachers' responses in the follow-up study showed the opposite (Abdul Razzak 2014). The researcher's analysis of the possible reasons behind this discrepancy attributed it to a likely misinterpretation of the teachers' attitude toward ICT by the school leaders, and it was explained as follows: "What they may have taken as a negative attitude and a resistance to change and to ICT integration from the side of the teachers may not exactly be that. Instead, it may just be a lack of sufficient opportunities to try out ICT integration because of several well-known conditions existing in most, if not all, of the Bahraini public schools" (Abdul Razzak 2014, p.70). These conditions act as potential barriers not only to ICT integration but also to any other AL strategy or attempts that would count as educational good practice. Examples of these are highlighted in several of the publications mentioned earlier in this commentary. In conclusion, the researcher is pleased she conducted the follow-up study because it reduced the chances of inaccurately portraying the most critical group of practitioners in Bahraini schools and the key change agents in the Kingdom's educational reform- *the teachers*.

With these reflections on publications, it is time to turn to a concluding statement including reflections of a different type, namely those related to the main benefits gained from working on this commentary.

2. Conclusion

While conducting her research (2008-2016), the researcher did not receive much guidance, as the institution where she was employed was newly established and had no explicit research strategy or directives. Thus, her research was based on a perceived need or personal interest in topics and issues that she encountered during teaching. Hence, she gave little thought to how her research works were connected. At the time, she was only guided by Economic Vision 2030 of the Kingdom of Bahrain because everything she

undertook in terms of teaching or research had to contribute in some way to fulfilling this vision.

Consequently, this exercise of working on her commentary has tremendously helped her identify connections between her different publications and has enabled her to realise that what she had previously viewed as separate research attempts were actually linked. Upon the in-depth examination and analysis involved in developing this commentary, it has become clear how collectively her different publications form a complete picture, as if pieces of a puzzle or different elements of a cohesive story. It is a story that begins with a specific setting (21st Century Bahrain in a time of vibrant educational reform), which has challenges and issues that need addressing (e.g. research restrictions; conservative T&L methods; barriers to the development of HOTS and other 21st Century skills). The story continues to describe the present support systems (e.g., BTC, MoE school improvement projects, BQA) that can help overcome these issues and challenges, especially when a specific type of pedagogy (student-driven learning) is stressed on and implemented in T&L environments in the Kingdom.

At first glance, this story woven by the researcher's publications appears complete and possesses a positive outcome. However, further reflection by the researcher while working on this commentary resulted in a different conclusion. As a practicing educator in Bahrain, she was now in a better position to realize that despite evident improvements at different levels, the existing educational reform support systems have proven to be, after ten years, still in need of considerable development. This is because they have been unable to address the existing challenges in education fast enough and have not yet achieved the reform target of raising the level of education in Bahrain to what is expected nationally. With continued reflection, she has concluded that an essential element is still missing. This element is partial interdisciplinarity. This is more content-focused than pedagogical, and the researcher sees great potential in it as an answer to the current critical situation of educational reform in Bahrain. To support this conclusion, the researcher proposed that a new educational enhancement project be introduced at the MoE level, with relevant policies and procedures that mandate the strategic planning for, and the implementation of, partial interdisciplinarity in all educational institutions of the Kingdom. She also described the main goals of this project

and the tools and methods needed for achieving them. This, consequently, constituted the researcher's main contribution resulting from working on her commentary.

The researcher believes this contribution to be of considerable value to herself as a researcher and educator, because throughout the process of working on this commentary, she has developed and grown intellectually. She is now able to view her publications, together with their contributions, as a cohesive whole. Thus, through this exercise, she has come to understand how, in terms of her research, the whole is greater than the sum of its parts and she intends to continue contributing to this through future relevant research. This is in the hope of ensuring a happier ending for all those involved in, and impacted by, school improvement and educational reform in the friendly Kingdom of Bahrain.

3. References (*Including Those of Citing Literature)*

Abdulrahman, E. (2017) 'The status of applying electronic management in the functions of administrative processes among the Jordanian school principals in the Capital Governorate of Amman, and the ways of developing them', *IUG Journal of Educational and Psychology Sciences, 26*(6), pp.1-28.

Abdul Razzak, N. (2020) 'Paulo Freire's critical and dialogic pedagogy and its implications for the Bahraini educational context', *Educational Philosophy and Theory*, DOI: 10.1080/00131857.2020.1716731.

Abdul Razzak, N. (2011) 'Role-playing in the classroom: Reactions and gender differences of students from a conservative culture', *Journal of Middle East Women's Studies*, 7(2), pp. 89-102.

Abdul Razzak, N. (2012a), 'Problem-based learning in the educational psychology classroom: Bahraini teacher candidates' experience', *International Journal of Teaching and Learning in Higher Education,* 24(2), pp. 134-143.

Abdul Razzak, N. (2012b) 'The missing link: teachers' professional development and implementation in the Bahraini classroom,' *The Gulf Comparative Education Society's Third Annual Symposium on Global Innovation, Local Transformation: Trends and Reactions.* Manama, Bahrain, 24-25 March 2012. Shaikh Saud Bin Saqr Alqasimi Foundation for Policy Research, pp. 20-27. Available at: http://gces.ae/wp-content/uploads/2016/09/Third-Annual-GCES-Symposium-Conference-Proceedings.pdf#page=20. (Accessed: 20 December 2019).

Abdul Razzak, N. (2013a) 'The effectiveness of a university-based professional development programme in developing Bahraini school leaders' management and leadership competencies of implementing effective school-wide

professional development and ICT integration', *Professional Development in Education*, 39(5), pp. 732-753, DOI:10.1080/19415257.2012.759127.

Abdul Razzak, N. (2014) 'In-service teachers' attitudes towards technology integration in the Bahraini classroom', *World Journal on Educational Technology*, 6(1), pp. 60-74.

Abdul Razzak, N. (2015a) 'An evaluation of an integrated e-portfolio model: the case of Bahrain Teachers' College', *The IEEE 5th International E-Learning Conference: Cognitively Informed Technology*, Manama, Bahrain, 18-20 October 2015, IEEE, pp. 86-96, viewed 22 March 2016, DOI 10.1109/ECONF.2015.45.

Abdul Razzak, N. (2015b) 'The lived-through experience of the senior teacher: a closer look at a middle management and leadership position in Bahraini public schools', *Cogent Education*, 2(1), DOI: 10.1080/2331186X.2015.1123084.

Abdul Razzak, N. (2013b) 'Challenges facing school leadership in promoting ICT integration in instruction in the public schools of Bahrain', *Education and Information Technologies*, 20 (2), pp. 303-318, DOI:10.1007/s10639-013-9283-7.

Abdul Razzak, N. (2016a) 'Teachers' experiences with school improvement projects: the case of Bahraini public schools', *Cogent Education*, 3(1), DOI:10.1080/2331186X.2016.1229898.

Abdul Razzak, N. (2016b) 'Strategies for effective faculty involvement in online activities aimed at promoting critical thinking and deep learning', *Education and Information Technologies*, 21(4), pp. 881-89. DOI: 10.1007/s10639-014-9359-z.

Abdul Razzak, N. (2018) 'Bahrain', in Weber, A. and Hamlaoui, S. (eds.), E-*Learning*

in the Middle East and North Africa. Cham, Springer International Publishing AG, pp. 27-53.

Abdul Razzak, N. and Albaker, K. (2015) 'Leading and Managing Action Research for School Improvement: The Case of Bahraini Schools' in Abbott, G. (ed.) *Private and Public Schools: International Perspectives, Management and Educational Efficiency*, New York, Nova Science Publishers, pp. 197-209.

Agormedah, E.K. et al. (2019) 'Instructional technology integration: understanding senior high school business studies teachers' concerns', *American Journal of Social Sciences and Humanities,4*(4), pp. 486-497. DOI: 10.20448/801.44.486.497.

Albaker, K. (2017), 'Analytical view of Bahrain's government schools' performance: a quality perspective', *Sage Open*, 7(4). Available at: https://journals.sagepub.com/doi/abs/10.1177/2158244017736555. (Accessed: 20 December 2019).

Al-Ammary, J., Mohammed, Z., and Omran, F (2016) 'E-learning capability maturity level in the Kingdom of Bahrain', *The Turkish Online Journal of Educational Technology*, 15(2), pp. 47-60. Available at: http://www.tojet.net/articles/v15i2/1526.pdf. (Accessed: 25 December 2019).

Almani, A. (2017) *Enhancing Modern ICT in Saudi Arabian Public Schools*. Master's Thesis. University of Windsor, UK. Available at: https://scholar.uwindsor.ca/etd/7231 (Accessed: 07 January 2020).

Al-Mubaid, H. et al. (2016) 'Empowering deep thinking to support critical thinking in teaching and learning', *SIGMIS-CPR '16: Proceedings of the 2016 ACM SIGMIS Conference on Computers and People Research*, Virginia, USA, 2-4 June 2016, pp. 69–75. Available at:

https://doi.org/10.1145/2890602.2890606. (Accessed: 06 January 2020).

Alzayed, A. (2016). *Problem based learning in Islamic education in the formal curriculum: a case study of secondary girls' education in the Kingdom of Bahrain*. Doctoral Thesis. University of Huddersfield, UK. Available at: http://eprints.hud.ac.uk/id/eprint/28371/ (Accessed: 06 January 2020).

Anagun, S.S. (2018), 'Teachers' perceptions about the relationship between 21st Century skills and managing constructivist learning environments', *International Journal of Instruction*, 11(4), pp. 825-840.

Arar, K. and Abramovitz, R. (2017) 'Teacher-related factors in assimilation of technological change in schools: the case of an Arab school', *International Journal of Educational Management, 31* (6), pp.766-779. Available at: doi.org/10.1108/IJEM-03-2016-0057 (Accessed: 21 January 2020).

Arend, B. (2009), 'Encouraging critical thinking in online threaded discussions', *The Journal of Educators Online*, 6(1), pp. 1-23.

Atieno, O.P. (2009), 'An analysis of the strengths and limitation of qualitative and quantitative research paradigms', *Problems of Education in the 21st Century*, 13, pp.13-18. Available at: http://www.scientiasocialis.lt/pec/files/pdf/Atieno_Vol.13.pdf (Accessed: 08 November 2019).

Augsburg, T. (2016) *Becoming interdisciplinary: an introduction to interdisciplinary studies*. 3rd edn. Dubuque- Iowa: Kendall Hunt Publishing.

Australian Council for Educational Research [ACER] (2020). *School improvement*. Available at: https://www.acer.org/au/school-improvement (Accessed: 15 July 2020).

Bacigalupe, G. and Lambe, S. (2011), 'Virtualizing intimacy: information communication technologies and transnational families in therapy', *Family Process*, 50(1), pp. 12–26. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.15455300.2010.01343.x#accessDenialLayout (Accessed: 10 November 2019).

Baepler, P., Walker, J.D., and Driessen, M. (2014) 'It's not about seat time: blending, flipping, and efficiency in active learning classrooms', *Computers & Education*, 78, pp. 227-236. Available at: https://doi.org/10.1016%2Fj.compedu.2014.06.006 (Accessed: 21 January 2020).

Bahrain Economic Development Board [BEDB] (2008) *Bahrain Vision 2030. The Bahrain economic vision 2030: from regional pioneer to global contender*. Available at: http://www.bahrainedb.com/en/about/Pages/economic%20vision%202030.aspx#.VZ5f60u4nHg (Accessed: 17 November 2015).

Bahrain Economic Development Board [BEDB] (2009) *The Economic Vision 2030 for Bahrain*. Available at: https://www.bahrain.bh/wps/wcm/connect/38f53f2f-9ad6-423d9c962dbf17810c94/Vision%2B2030%2BEnglish%2B%28low%2Bresolution%29.pdf?MOD=AJPERES (Accessed: 23 February 2015).

Bahrain Economic Development Board [BEDB] (2019) *National development strategy*. Available at: https://bahrainedb.com/about-us/national-development-strategy/ (Accessed: 09 September 2019).

Bahrain Education & Training Quality Authority (BQA) (2018) *Annual report 2018*. Available at: https://www.bqa.gov.bh/En/Publications/AnnualReports/13%20jun%20FINAL%20English%20Annual%20Report%202018.pdf (Accessed: 06 February 2019).

Bahrain Education & Training Quality Authority (BQA) (2016) *Bachelor of Education: Bahrain Teachers' College of the University of Bahrain*. Available at: https://www.bqa.gov.bh/En/Reports/UniReports/Pages/UniversityDetail.aspx?SName=Bahrain%20Teachers%20College (Accessed: 21 December 2018).

Bahrain Ministry of Education (MoE) (2010) *Strategic Plan 2011-2014*. Available at: https://planipolis.iiep.unesco.org/sites/planipolis/files/ressources/bahrain_strategic_plan_2011-2014.pdf (Accessed: 03 January 2018).

Bahrain Ministry of Education (MoE) (2014) *National Higher Education Strategy*. Available at: http://www.moedu.gov.bh/hec/UploadFiles/Bahrain%20Higher%20Education%20Strategy%20-%20Summary.pdf (Accessed: 05 March 2018).

Bahrain Teachers' College (BTC) (2019) *About the college*. Available at: http://www.uob.edu.bh/en/index.php/colleges/bahrain-teachers-college (Accessed: 24 February 2019).

Bancino, R. and Zevalkink, C. (2007) 'Soft skills: the new curriculum for hard-core technical professionals,' *Techniques: Connecting Education and Careers*, 82(5), 9-18.

Baporikar, N. and Shah, I. (2012) 'Quality of higher education in 21st Century- a case of Oman', *Journal of Educational and Instructional Studies in the World*, 2(2), 9-18.

Barnes, J. (1982) *Aristotle: A very short introduction*. New York: Oxford University Press.

Barnett, R. (2004) 'Learning for an unknown future,' *Higher Education Research & Development, 23*(3), pp. 247-260. DOI: 10.1080/0729436042000235382.

Barton, G. and Ryan, M. E. (2014) 'Multimodal approaches to reflective teaching and assessment in higher education,' *Higher Education Research & Development,* 33(3), pp. 409-424. Available at: http://dx.doi.org/10.1080/07294360.2013.841650. (Accessed: 20 December 2019)Bassey, M. (1999) *Case study research in educational settings.* Buckingham, U.K.: Open University Press.

Bates T. (2010) 'New challenges for universities: why they must change' in: Ehlers, U.D. and Schneckenberg, D. (eds.) *Changing Cultures in Higher Education*, Berlin, Heidelberg, Springer, pp. 15-26.

Baxter, J. (2019) 'How biological technology should inform the causal selection debate,' *Philosophy, Theory, and Practice in Biology,* 11(2). doi:10.3998/ptpbio.16039257.0011.002.

Beachy, R. (2011) 'Addressing the grand societal challenges requires change in conduct of research: the role of NIFA in "assisting" the change,' Keynote address, *Third Biennial Midwest Summit on Leadership in Interdisciplinarity, Networking & Collaboration (LINC)*. St. Louis, MO, 24 February 2011.

Beckem, J.M.II and Watkins, M. (2012) 'Bringing life to learning: immersive experiential learning simulations for online and blended courses,' *Journal of Asynchronous Learning Networks,* 16(5), pp. 61-71.

Bell, S. (2010) 'Project-based learning for the 21st Century: skills for the future,' *The Clearing House: A Journal of Educational Strategies, Issues and Ideas,* 83(2), pp. 39-43.

Belwal, S. et al. (2014) 'Characteristics, motivations, and challenges of women entrepreneurs in Oman Al-Dhahira Region', *Journal of Middle East Women's Studies*, *10* (2), pp. 135–151. Available at: https://doi.org/10.2979/jmiddeastwomstud.10.2.135 (Accessed: 03 January 2020).

Bennett, D., Richardson. S., and MacKinnon, P. (2016), *Enacting strategies for graduate employability: how universities can best support students to develop generic skills- Part A*, Canberra, ACT: Australian Government, Office for Learning and Teaching, Department of Education and Training. Available at: https://melbourne-cshe.unimelb.edu.au/_data/assets/pdf_file/0011/1874774/SP13-3258_Curtin_Bennett_Graduate-Employability_Final-Report_Part-A_20163.pdf (Accessed: 07 July 2019).

Berg, J.H. (2019), 'Leading together/Tuning in to teachers' voices', *The Tech-Savvy School*, 76(5), pp. 84-84. Available at: http://www.ascd.org/publications/educational-leadership/feb19/vol76/num05/Tuning-in-to-Teachers'-Voices.aspx (Accessed: 14 July 2020).

Bernauer, J. (2002) 'Five keys to unlock continuous school improvement,' *Kappa Delta Pi Record*, 38, pp. 89–92. doi:10.1080/00228958.2002.10516350.

Bhattacherjee, A. (2012) *Social science research: Principles, methods, and practices*. Florida, USA: University of South Florida. Available at: http://scholarcommons.usf.edu/oa_textbooks/3/ (Accessed: 01 December 2020).

Biggs, J. (1987) *Student approaches to learning and studying*. Hawthorn, Victoria: Australian Council for Educational Research.

Biggs, J. (2001) 'Enhancing learning: a matter of style or approach? in Sternberg, R.J. and. Zhang, L.F (eds) *Perspectives on thinking, learning, and cognitive styles*, Mahwah, New Jersey, Lawrence Erlbaum Associates, pp. 73-102.

Blair, S.N. (2009) 'Physical inactivity: the biggest public health problem of the 21st Century', *British Journal of Sports Medicine*, 43(1), p. 1.

Boekaerts, M. and Niemivirta, M. (2000) 'Self-regulated learning: finding a balance between learning goals and ego-protective goals' in Boekaerts, M., Pintrich, P. and Zeitner, M. (eds.) *Handbook of Self-Regulation*, San Diego, CA, Academic Press, pp.417-450.

Bonwell, C. and Eison, J. (1991) 'Active learning: creating excitement in the classroom,' *Information Analyses*, 71, p. 3. Available at: https://files.eric.ed.gov/fulltext/ED336049.pdf (Accessed: 20 December 2019).

Borg, S. and Al-Busaidi, S. (2012) 'Teachers' beliefs and practices regarding learning autonomy,' *ELT Journal*, 66(3), pp. 283-292.

Borgia, E.T. and Schuler, D. (1996) *Action research in early childhood education*. Champaign, Illinois, USA: University of Illinois at Urbana.

Borkan, J. M., (2004) 'Mixed Methods Studies: A Foundation for Primary Care Research', *Annals of Family Medicine*, 2(1), pp.4–6.

Bose, B. (2010) 'Global warming: energy, environmental pollution, and the impact of power electronics,' *IEEE Industrial Electronics Magazine*, 4(1), pp. 6-17.

Bradshaw, M. (2001) 'Contracts and member check in qualitative research in human geography,' *Area*, 33(2), pp. 202-211.

Bramwell, A. and Wolfe, D. A. (2008) 'Universities and regional economic development: the entrepreneurial University of Waterloo,' *Research Policy*, 37(8), pp. 1175-1187. Available at: https://doi.org/10.1016/j.respol.2008.04.016. (Accessed: 03 January 2020).

Brand, B.R. and Moore, S.J. (2011) 'Enhancing teachers' application of inquiry-based strategies using a constructivist sociocultural professional development model,' *International Journal of Science Education*, 33(7), pp. 889-913.

Brant, G., Hooper, E. and Sugrue, B. (1991) 'Which comes first: the simulation or the lecture?' *Journal of Educational Computing Research*, 7(4), pp. 469-481.

Brew, A. and Boud, D. (1995) 'Teaching and research: establishing the vital link with learning,' *Higher Education*, 29, pp. 261-273.

Brookfield, S. (1998) 'Critically reflective practice,' *Journal of Continuing Education in the Health Professions*, 18, pp. 197-205.

Brown, P., and Calnan, M. (2011) 'The risks of managing uncertainty: the limitations of governance and choice, and the potential for trust,' *Social Policy and Society*, 9(1), pp. 13 –24.

Bruner, J. S. (1978) 'The Role of Dialogue in Language Acquisition' in Sinclair, A., Jarvelle, R.J. , and Levelt, W. J.M. (ed.) *The Child's Concept of Language*, New York: Springer-Verlag, pp. 241-257.

Bursztyn, M. and Drummond, J. (2014) 'Sustainability science and the university: pitfalls and bridges to interdisciplinarity,' *Environmental Education Research*, 20(3), pp. 313-332.

Bryman, A. (2004) *Social Research Methods*, 2nd ed. Oxford University Press, New York.

Bryman, A. and Burgess, R.G. (eds.) (1994). *Analyzing qualitative data*. London: Routledge.

Carlson, R. (2003) 'The pace and proliferation of biological technologies,' *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science,* 1(3), pp. 203-214.

Cash, J.A. (2015) *School leaders and the implementation of education management information system (Emis) in the Bahamas: a case study of six principals*. DPhil Thesis. University of Sussex, UK. Available at: http://sro.sussex.ac.uk/id/eprint/59360/1/Cash%2C%20John%20Alexander.pdf (Accessed: 06 January 2020).

Castells, M. (2000) 'Toward a sociology of the network society,' *Contemporary Sociology,* 29(5), pp. 693-699.

Castells, M. (2014) 'The impact of the internet on society: a global perspective,' *OpenMind*. viewed 11 July 2019. Available at: https://www.bbvaopenmind.com/en/articles/the-impact-of-the-internet-on-society-a-global-perspective/. (Accessed: 20 May 2019).

Chabaan, Y. and Cherif, M.E. (2016) 'Technology integration in EFL classrooms: A study of Qatari independent schools', *Education and Information Technologies,* *22*(5), pp. 2433–2454. Available at: https://doi.org/10.1007/s10639-016-9552-3 (Accessed: 07 January 2020).

Chamberlin-Quinlisk, C. (2012) 'Teaching language and culture in a digital age,' *I-manager's Journal of Educational Technology,* 9 (1), pp. 6-14. Available at: https://files.eric.ed.gov/fulltext/EJ1102035.pdf. (Accessed: 20 December 2019).

Chan, V. (2003a) 'Autonomous language learning: the teachers' perspectives,' *Teaching in Higher Education,* 8, pp. 33-54.

Chan, K. (2003b) 'Hong Kong teacher education students' epistemological beliefs and approaches to learning,' *Research in Education,* 69, pp. 36–50. Available at: http://repository.ied.edu.hk/dspace/handle/2260.2/5451. (Accessed: 20 December 2019).

Chandler, R., Anstey, E. and Ross, H. (2015) 'Listening to voices and visualising data in qualitaitive research: Hypermodal dissemination possibilities,' *Sage Open, 5*(2). Available at: http://journals.sagepub.com/doi/abs/10.1177/2158244015592166. (Accessed: 10 August 2018).

Chang, Y.S. (2012) 'Student technological creativity using online problem-solving activities,' *International Journal of Technology and Design Education,* 13(2), pp. 1-32.

Cheong, C.M. and Cheung, W.S. (2008) 'Online discussion and critical thinking skills: a case study in a Singapore secondary school,' *Australasian Journal of Educational Technology*, 24(5), pp. 556-573.

Chung, I-F. (2013) 'Are learners becoming more autonomous? The role of self-access center in EFL college students' English learning in Taiwan,' *The Asia-Pacific Education Researcher, 22*, pp. 701-708.

Claxton, G. and Lucas, B. (2013) *Redesigning Schools 2: What Kind of Teaching for What Kind of Learning*. London, UK: SSAT, The School Network.

Collins, D. (2000) *Achieving your vision of professional development: how to assess your needs and get what you want*. 3rd edn. Greensboro, NC: SERVE.

Cornelius, D. (2011) 'The education and skills gap: a global crisis,' *Techniques: Connecting Education and Careers (J1)*, 86(4), pp. 50-55. Available at: https://files.eric.ed.gov/fulltext/EJ926104.pdf. (Accessed: 17 October 2019).

Costa, AL, and Kallick, B. (eds.) (2008) *Learning and Leading with Habits of Mind: 16 Essential Characteristics for Success*, Alexandria: Association for Supervision & Curriculum Development. Available at: http://www.ascd.org/Publications/Books/Overview/Learning-and-Leading-with-Habits-of-Mind.aspx (Accessed: 07 February 2019).

Cox, C.R. (2018) *Massive open online course completion journeys: a descriptive case study of self-efficacy and self-determination of adult learners*. Doctoral dissertation. North Carolina State University, USA. Available at: https://repository.lib.ncsu.edu/handle/1840.20/35624 (Accessed: 05 January 2020).

Cranton, P. (2012) *Planning instruction for adult learners,* 3rd edn. Toronto: Wall & Emerson.

Creswell, W. (2007) *Research design. Qualitative and mixed methods approaches.* London: Sage.

Creswell, J.W., and Plano Clark, V.L. (2007) *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.

Creswell, J.W., Klassen, A.C., Plano Clark, V.L., and Clegg Smith, C. (2011) *Best practices for mixed methods research in the health sciences*. NIH Office of Behavioral and Social Sciences Research (OBSSR). National Institutes of Health. Available at: https://www.obssr.od.nih.gov/wp-content/uploads/2018/01/Best-Practices-for-Mixed-Methods-Research-in-the-Health-Sciences-2018-01-25.pdf (Accessed: 01 December 2019).

Dagar, V. and Yadav, A. (2016) 'Constructivism: a paradigm for teaching and

learning,' *Arts Social Science Journal, 7(4)*, p. 200. doi:10.4172/2151-6200.1000200.

Damron, D. and Mott, J. (2005) 'Creating an interactive classroom: enhancing student engagement and learning in political science courses,' *Journal of Political Science Education,* 1(3), p. 367-383.

Danielson, C. (2006). Teacher leadership that strengthens professional practice. Alexandria, VA: Association for Supervision and Curriculum Development.

Darling-Hammond, L. (1990). Teachers and teaching: Signs of a changing profession. In R. Houston (Ed.), Handbook of research on teacher education (pp. 267–289). New York: Macmillan Publishing Company.

Darling-Hammond, L., Meyerson, D., La Pointe, M., and Orr, M.T. (2010) *Preparing principals for a changing world: lessons from effective school leadership programs*, San Francisco, CA: Jossey-Bass.

Deb, S. (2014) 'Information technology, its impact on society and its future,' *Advances in Computing*, *4*(1), pp. 25-29.

Deloitte (2013) *Education: Middle East public sector national necessities*. Available at: https://www2.deloitte.com/content/dam/Deloitte/xe/Documents/publicsector/me_public%20sector-whitepaper-education-06112013.pdf (Accessed: 12 July 2019).

Dekker, S. and Fischer, R. (2008) 'Cultural differences in academic motivation goals: a meta-analysis across 13 societies', *The Journal of Educational Research,* 102, pp. 99-110.

DeLyser, D. (2001) 'Do you really live here? Thoughts on insider research', *Geographical Review*, 91, pp. 441–453.

Dewey, J. (1933) *How we think: a restatement of the relation of reflective thinking to the educative process*, Chicago: D.C. Heath.

Dewey, J. (2016) *Democracy and education: an introduction to the philosophy of education*, New York, USA: Free Press.

Donn, G., and AlManthri, Y. (2010) *Globalisation and higher education in the Arab Gulf States*, Didcot, Oxford. U.K: Syposium Books.

Douglass, C. and Morris, S.R. (2014) 'Student perspectives on self-directed learning,' *Journal of the Scholarship of Teaching and Learning*, 14(1), pp. 13-25.

Dudley, J. R. (2010). Research methods for social work: Being producers and consumers of Research. (2nd ed.). Boston, MA: Pearson Allyn & Bacon.

Duff, A and McKinstry, S. (2007) 'Students' approaches to learning,' *Issues in Accounting Education*, 22(2), pp. 183-214. doi: 10.2308/iace.2007.22.2.183.

Edens, K.M. (2008/9) 'The interaction of pedagogical approach, gender, self-regulation, and goal orientation using student response system technology', *Journal of Research on Technology in Education*, 41, pp. 171-177.

Eickelmann, B. et al. (2016) 'ICT use in mathematics lessons and the mathematics achievement of secondary school students by international comparison: Which role do school level factors play', *Education and Information Technologies*, *22*(4), pp. 1527–1551. Available at: https://doi.org/10.1007/s10639-016-9498-5 (Accessed 06 January 2020).

Eksail, F. and Afari, E. (2019) 'Factors affecting trainee teachers' intention to use technology: a structural equation modeling approach', *Education and Information Technologies*. Available at: https://doi.org/10.1007/s10639-019-10086-2. (Accessed: 07 January 2020).

Elliott, J. (2001) *Action research for educational change*. Buckingham, UK: Open University Press.

El Takach, S. et al. (2018) 'Lebanese public-school principals' attitudes, level of ICT use, and leadership style', *ICEMST 2018: International Conference on Education in Mathematics, Science and Technology*. Marmaris, Turkey, 28 April- 01 May 2018, International Society for Research in Education and Science (ISRES), pp. 303-315. Available at: https://dergipark.org.tr/en/download/article-file/533288. (Accessed: 08 January 2020).

Entwistle, N.E. (2000) 'Promoting deep learning through teaching and assessment: conceptual frameworks and educational contexts', *1st Annual Conference ESRC Teaching and Learning Research Programme (TLRP)*. University of Leicester, United Kingdom, November 2000, TLRP. Available at: http://www.tlrp.org/acadpub/Entwistle2000.pdf. (Accessed: 07 January 2020).

Entwistle, N. and Peterson, E. R. (2004) 'Conceptions of learning and knowledge in higher education: Relationships with study behavior and influences of learning environments,' *International Journal of Educational Research*, 41(6), pp. 407-428. doi: 10.1016/j.ijer.2005.08.009.

Ernst &Young (EYG) (2015) *How will the GCC close the skills' gap? Report EYG no. AU3093*. Available at: https://www.ey.com/em/en/industries/government---public-sector/ey-how-will-the-gcc-close-the-skills-gap (Accessed: 11 August 2019).

Erstad, O. (2006) 'A new direction? Digital literacy, student participation and curriculum reform in Norway,' *Education and Information Technologies,* 11, pp. 415-429.

Eullaran, E.M. (2018) *ICT integration in the classroom, barriers and technological self-efficacy among teachers of cluster north, city schools division of Tacurong: basis for ICT professional development programme - Funded by Basic Education Research Fund (BERF).* Available at: https://www.depedroxii.org/download/berf/berf_2016(2)/human_resource_(2016)/HR%20Ester%20Eullaran_Tacurong%20City.pdf (Accessed: 06 January 2020).

Filho, L.W. (2000) 'Dealing with misconceptions on the concept of sustainability', *International Journal of Sustainability in Higher Education,* 1(1), pp. 9–19.

Fink, A.S. (2000) 'The role of the researcher in the qualitative research process: a potential barrier to archiving qualitative data,' *Forum: Qualitative Social Research,* 1(3). Available at: http://nbn-resolving.de/urn:nbn:de:0114-fqs000344. (Accessed: 10 January 2020).

Flavell, J. (1979) 'Metacognition and cognitive monitoring: a new area of cognitive—developmental inquiry,' *American Psychologist, 34*(10), pp. 906-911. Available at: http://jwilson.coe.uga.edu/EMAT7050/Students/Wilson/Flavell%20(1979).pdf (Accessed: 20 September 2019).

Flyvbjerg, B. (2001) *Making social science matter: Why social inquiry fails and how it can succeed again*. Cambridge, UK: Cambridge University Press.

Freire, P. (2003) *Pedagogy of the oppressed*. New York, NY: The Continuum International Publishing Group.

Fullan, M. and Scott, G. (2014) *New pedagogies for deep learning*. Available at: https://www.michaelfullan.ca/wp-content/uploads/2014/09/Education-Plus-A-Whitepaper-July-2014-1.pdf (Accessed: 13 October 2019).

Gallego-Arrufat, M.J. et al. (2017)' School technology leadership in a Spanish secondary school: the TEI model', *Improving Schools, 20(*3), pp. 247-263. Available at: https://doi.org/10.1177/1365480217732232 (Accessed: 06 January 2020).

Gardner, H. (2000). *The disciplined mind*. New York, USA: Penguin Books.

Gerick, J. (2018). 'School level characteristics and students' CIL in Europe – A latent class analysis approach', *Computers & Education, 120,* pp.160-177. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0360131518300137 (Accessed: 06 January 2020).

GFH (2016), Sector Report. GCC education. Available at: https://www.gfh.com/wp-content/uploads/GFH-Education-Sector-Report.pdf (Accessed: 12 September 2019).

Goldhaber, D. D., and Brewer, D. (1997) 'Why don't schools and teachers seem to matter? Assessing the impact of unobservables on educational productivity', *The Journal of Human Resources*, 32, pp. 505–523. http://dx.doi.org/10.2307/146181.

Goldman, D. (2017) *Cultivating engagement through student-centered learning in a high school media art class*. Masters' thesis. Dominican University of California. Available at: https://scholar.dominican.edu/masters-theses/261 (Accessed: 14 August 2018).

Graves, K.E. (2019) *Disrupting the digital norm in the new digital divide: toward a conceptual and empirical framework of technology leadership for social justice*

through multilevel latent class analysis. Doctoral dissertation. Colombia University, New York, USA. Available at: https://academiccommons.columbia.edu/doi/10.7916/d8-7t3y-xt66 (Accessed: 03 January 2020).

Gray, J., Hopkins, D., Reynolds, D., Wilcox, B., Farrell, S., and Jesson, D. (1999). Improving schools: Performance and potential. Buckingham: Open University Press.

Guskey, T.R. (2000) *Evaluating professional development*. Thousand Oaks, CA: Corwin Press.

Gutierez, S.B. and Kim, H. (2017) 'Becoming teacher-researchers: teachers' reflections on collaborative professional development', *Educational Research*, 59(4), pp. 444-459, DOI: 10.1080/00131881.2017.1347051.

Guzman, W.C. (2018) 'A change laboratory professional development intervention to motivate university teachers to identify and overcome barriers to the integration of ICT', *Outlines-Critical Practice Studies, 19*(1), pp. 67-90. Available at: https://tidsskrift.dk/outlines/article/view/105531/154324 (Accessed: 04 January 2020).

Hall, G. E., and Hord, S. M. (1987) *Change in schools: Facilitating the process*. Albany, NY: State University of New York Press.

Hargreaves, A., and Evans, R. E. (1997) *Beyond educational reform: Bringing teachers back in*. Buckingham: Open University Press.

Hargreaves, A., and Shirley, D. (2011) *The far side of educational reform*. Ottawa: Canadian Teachers' Federation.

Harper, M. and Cole, P. (2012) 'Member checking: can benefits be gained similar to group therapy?' *The Qualitative Report, 17*(2), pp. 510-517. Available at: https://nsuworks.nova.edu/tqr/vol17/iss2/1 (Accessed: 11 September 2018).

Harun, W. and Shukor, N.A. (2019) 'Online interaction in social learning environment towards critical thinking skill: a framework', *Journal of Technology and Science Education, 9*(1), pp. 4-12. Available at: http://www.jotse.org/index.php/jotse/article/view/544 (Accessed: 05 January 2020).

Harvey, A. and Kamvounias, P. (2008) 'Bridging the implementation gap: a teacher-as-learner approach to teaching and learning policy', *Higher Education Research and Development, 27*(1), pp. 31-41. Doi:10.1080/07294360701658716.

Hawley, W. D., and Valli, L. (1999). The essentials of professional development: A new consensus. In L. Darling-Hammond & G. Dykes (Eds.), Teaching as the learning profession: Handbook of policy and practice (pp. 127–150). San Francisco, CA: Jossey-Bass.

Hayes, A. (2018) 'Tacit rejection of policy and teacher ambivalence: insights into English language teaching in Bahrain through actors' perceptions,' *TESOL Journal*, 9(1), pp. 114-137. Available at: https://onlinelibrary.wiley.com/doi/full/10.1002/tesj.310. (Accessed: 05 October 2019).

Heck, R. H., and Hallinger, P. (2009) 'Assessing the contribution of distributed leadership to school improvement and growth in math achievement', *American Educational Research Journal*, 46, 659–689. Available at: http://dx.doi.org/10.3102/0002831209340042 (Accessed 06 June 2020).

Hennessy, S., Ruthven, K., and Brindley, S. (2005) 'Teacher perspectives on integrating ICT into subject teaching: commitment, constraints, caution, and change,' *Journal of Curriculum Studies*, 37(2), 155–192.

Herranen, J., Vesterinen, V.M., and Aksela, M. (2018) 'From learner-centered to learner-driven sustainability education,' *Sustainability,* 10 (2190). doi:10.3390/su10072190.

Hewitt-Taylor, J. (2002) 'Evidence-based practice', *Nursing Standard,* 17(14/15), pp.52-57.

Holec, H. (1981) *Autonomy and Foreign Language*. New York: Teachers College Press.

Honglin, W. (2018) 'A study on deep learning and its enlightenment on china's foreign language learning', *Proceedings of the 2018 2nd International Conference on Education Science and Economic Management (ICESEM 2018).* Xiamen, China, 25-26 August 2018, Advances in Social Science, Education and Humanities Research (ASSEHR), pp. 157-161. Available at: https://doi.org/10.2991/icesem-18.2018.34. (Accessed: 03 January 2020).

Hsu, C.L. (2014) 'The Study of Adopting Problem Based Learning in Normal Scale Class Course Design', *International Conferences on Educational Technologies 2014 and Sustainability, Technology and Education 2014*. New Tapei City, Taiwan, 10-12 December 2014. Available at: http://www.iadisportal.org/digital-library/the-study-of-adopting-problem-based-learning-in-normal-scale-class-course-design. (Accessed: 06 January 2020).

Huang, S.J., Su, Y.S., Yang, J.H., and Liou, H.H. (2017) 'A collaborative digital pen learning approach to improving students' learning achievement and motivation in mathematics courses,' *Comput. Educ.*, 107, pp. 31-44.

Huber, M.T., Hutchings, P., and Gale, R. (2007) 'Leading initiatives for integrative learning,' *Liberal Education,* 93 (2). Available at: https://www.aacu.org/publications-research/periodicals/leading-initiatives-integrative-learning. (Accessed: 31 August 2019).

Hughes, C. (2018) 'Seven global challenges for 21st Century education,' 18 November. Available at: https://www.internationalschoolparent.com/articles/seven-global-education-challenges/ (Accessed: 15 March 2019).

Iacobucci, D. and Hoeffler, S. (2016) 'Leveraging social networks to develop radically new products,' *Journal of Product Innovation Management,* 33(2), pp. 217-223.

Ingersoll, R., Sirindes, P., & Dougherty, P. (2018) 'Teachers' roles in school decision making and school performance,' *American Educator, 42*(1), pp.13–17.

Issa, R. (2016) *Employing a descriptive model to assess e-learning readiness of Palestinian public secondary schools.* Master's thesis. Al-Najah National University, Nablus, Palestinian West Bank. Available at: https://repository.najah.edu/bitstream/handle/20.500.11888/10544/Rami%20Issa.pdf?sequence=1&isAllowed=y (Accessed: 05 January 2020).

Issa, R. and Jarron, A. (2017) 'Measuring e-learning readiness: the case of Palestinian public secondary schools', *International Journal of Technology Enhanced Learning, 9*(4), pp. pp.319 – 338. DOI: 10.1504/IJTEL.2017.087792.

Jacobson-Lundeberg, V. (2016) 'Pedagogical implementation of 21st Century skills,' *Educational Leadership and Administration: Teaching and Program Development,* (27), pp. 82-100.

Jogezai, N.A. et al. (2018) 'Secondary school teachers' concerns about ICT

integration: perspectives from a developing part of the globe', *EURASIA Journal of Mathematics, Science and Technology Education, 14*(12). Available at: DOI: https://doi.org/10.29333/ejmste/95124. (Accessed: 10 January 2020).

Jones, R.T. (2019) *Understanding the overall experience of the school improvement specialist in the State of Arkansas*. Doctoral dissertation. Arkansas Tech University, Arkansas, USA. Available at: https://orc.library.atu.edu/etds_2019/6/ (Accessed: 01 January 2020).

Jonsson, P. (2010) 'BP oil spill: "Mystery Plumber" may be brains behind containment cap', *The Christian Science Monitor*, 15th July. Available at: https://www.csmonitor.com/Environment/2010/0715/BP-oil-spill-Mystery-plumber-may-be-brains-behind-containment-cap (Accessed: 15 June 2018).

Kamali, A. (2018) *An investigation of e-government adoption in Bahrain and evaluate the key determining factors for strategic advantage*. Doctoral dissertation. London South Bank University, UK. Available at: https://openresearch.lsbu.ac.uk/item/86w51 (Accessed: 04 January 2020).

Kapur, M. Bielaczyc, K. (2012) 'Designing for productive failure,' *Journal of the Learning Sciences*, 21(1), pp. 45-83.

Kassem, M. (2018) 'Improving EFL students' speaking proficiency and motivation: a hybrid problem-based learning approach', *Theory and Practice in Language Studies*, *8*(7), pp. 848-859. Available at: DOI: http://dx.doi.org/10.17507/tpls.0807.17 (Accessed: 03 January 2020).

Kemmis, S. and McTaggart, R. (1988) *The action research planner*. Geelong, VIC, Australia: Deakin University Press.

Khatib, F., Dimaio, F., Cooper, S., Kazmierczyk, M., Gilski, M., Krzywda, S.,

Zabranska, H., Pichova, I., Thompson, J., Popovic, Z., Jaskolski, M., and Baker, D. (2011) 'Crystal structure of a monomeric retroviral protease solved by protein folding game players,' *Nature Structural & Molecular Biology*, 18, pp.1175-1177.

Kingston, E. and Forland, H. (2008) 'Bridging the gap in expectations between international students and academic staff,' *Journal of Studies in International Education*, 12(2), pp. 204-221.

Kirk, D., and Napier, D. (2009) 'The transformation of higher education in the United Arab Emirates: issues, implications, and intercultural dimensions,' in Zadja, J. Daun, H. & Saha, L. (eds.) *Nation-building, identity and citizenship education*. Amsterdam: Springer, pp. 131–142.

Kirtiklis, K. (2017) 'Manuel Castells' theory of information society as media theory', *Lingua Posnaniensis*, 59(1), pp. 65-77. Available at: https://doi.org/10.1515/linpo-2017-006 . (Accessed: 23 May 2019).

Klein, J.T. (1990) *Interdisciplinarity: History, Theory, and Practice*. Detroit-Michigan, USA: Wayne State University Press. Available at https://books.google.com.bh/books?id=4uM8fjxhjqsC&printsec=frontcover&hl=ar&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false. (Accessed: 13 January 2020).

Klein, J.T. and Newell, W.H. (1996) 'Advancing interdisciplinary studies,' in Gaff, J. and Ratcliff, J. (eds.) *Handbook of the undergraduate curriculum*. San Francisco- CA, USA: Jossey-Bass.

Krain, M. and Shadle, C.J. (2006) 'Starving for knowledge: an active learning approach to teaching about world hunger', *International Studies Perspective*, 7, pp. 51-66.

Kurniatia, I., and Surya, E. (2017) 'Student's Perception of their Teacher Teaching Style's', *International Journal of Sciences: Basic and Applied Research, 33*(2), pp. 91-98.

Kurt, A.A., Kuzu, A., Dursun, O.O., Gullupinar, F., and Gultekin, M. (2013) 'Assessment of the implementation of the FATIH pilot project: teachers' views,' *Journal of Instructional Technologies & Teacher Education,* 1(2). Available at: https://dergipark.org.tr/en/pub/jitte/issue/25080/264689 (Accessed: 08 June 2019).

Lam, R. (2013) 'The relationship between assessment types and text revision,' *ELT Journal,* 67(4), pp. 446-458.

Lambert, L. (2003) 'Leadership redefined: An evocative context for teacher leadership', *School Leadership and Management*, 23, 421–430.

Landis, C.M., Scott, S.B., and Kahn, S. (2015) 'Examining the role of reflection in e-portfolios: a case study,' *International Journal of e-Portfolio,* 5(2), pp. 107-121. Available at: https://files.eric.ed.gov/fulltext/EJ1107855.pdf (Accessed: 22 April 2019).

Lawrence, A. and Mirza, C. (2016) 'Creating a national innovation and skills ecosystem through international bridges', in Stiasny, M. and Gore, T (eds.) *Going Global: connecting cultures, forging futures*. London: IOE Press.

Lee, C., Yeung, A.S., and Ip, T. (2017) 'University English language learners' readiness to use computer technology for self-directed learning,' *System,* 67, pp. 99-110.

Leonard, B. (2018) *Student-Centered collaborative classrooms and critical thinking skills*. Masters' thesis. Northwestern College, Iowa. Available at:

https://nwcommons.nwciowa.edu/cgi/viewcontent.cgi?article=1098&context=education_masters (Accessed: 03 July 2019).

Lincoln, Y.S. and Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Little, J. W. (1999) 'Organizing schools for teacher learning'. in Darling-Hammond, L. and Sykes, G. (eds.) *Teaching as the learning profession: Handbook of policy and practice* (pp.233–262). San Francisco, CA: Jossey-Bass.

Liu, H.H. and Su, Y.S. (2018) 'Effects of using task-driven classroom teaching on students' learning attitudes and learning effectiveness in an information technology course,' *Sustainability*, 10, 3957. doi:10.3390/su10113957.

Livingston, J.A. (2003) *Metacognition: an overview*. Available at: https://files.eric.ed.gov/fulltext/ED474273.pdf (Accessed: 08 May 2018).

Lo, Y.F. (2010) 'Assessing critical reflection in Asian EFL students' portfolios: an exploratory study,' *The Asia-Pacific Education Researcher*, 19(2), pp. 347-355.

Longman, P., Mundy, L., Black, R., Bornfreund, L., Byrum, G., Cramer, R., Gangadharan, S.P., Guernsey, L., Lieberman, A., Lynn, B., and McCarthy, M.A. (2015) 'Strengthening ties: the case for building a social policy centered on families,' *Family-centered Social Policy: New America*. Available at: https://files.eric.ed.gov/fulltext/ED558749.pdf. (Accessed: 20 December 2019). (Accessed: 15 May 2019).

Lonka, K. and Lindblom-Ylänne, S. (1996) 'Epistemologies, conceptions of learning, and study practices in medicine and psychology,' *Higher Education*, 31, pp. 5–24.

Lopez-Perez, M.V., Perez-Lopez, M., Rodriguez-Ariza, L. and Argente-Linares, E. (2013) 'The influence of the use of technology on student outcomes in a blended learning context,' *Educational Technology Research and Development Journal*, 61, pp. 625-638.

Luckin, R. (2008) 'The learner centric ecology of resources: a framework for using technology to scaffold learning,' *Computers & Education*, 50(2), pp. 449-462.

Lumpkin, A., Claxton, H., and Wilson, A. (2014). 'Key characteristics of teacher leaders in schools', *Administrative Issues Journal: Education, Practice, and Research*, 4, pp. 59–67.

MacBeath, J., and Mortimore, P. (2001) *Improving school effectiveness*. Buckingham: Open University Press.

MacDougall, M. (2012) 'Research-teaching linkages: beyond the divide in undergraduate medicine,' *International Journal for the Scholarship of Teaching and Learning*, 6(2). Available at: https://digitalcommons.georgiasouthern.edu/ij-sotl/vol6/iss2/21/. (Accessed: 25 July 2019).

Malacrida, C. (2007). 'Reflexive journaling on emotional research topics: ethical issues for team researchers,' *Qualitative Health Research*, 17(10), pp. 1329-1339. Available at: doi: http://dx.doi.org/10.1177/1049732307308948. (Accessed: 03 August 2019)

Marchisio, M. et al. (2017) 'Problem solving competence developed through a virtual learning environment in a European context', *International Scientific Conference eLearning and Software for Education*. Bucharest, Romania, 27-28 April 2017, E-learning And Software for Education, pp.455-463. DOI:

10.12753 / 2066-026X-17-067.

Mallon, S. (2010) 'Against tradition,' *The Contemporary Pacific*, 22(2), pp. 362–381. Available at: https://blog.tepapa.govt.nz/wp-content/uploads/2016/12/v22n2-362-381.pdf. (Accessed: 20 November 2019).

Mandernach, B.J. (2006) 'Thinking critically about critical thinking: integrating online tools to promote critical thinking' *Insight: A Collection of Faculty Scholarship*, 1, pp. 41-50.

Mansilla, B. and Duraisingh, D. (2007) 'Targeted assessment of students' interdisciplinary work: an empirically grounded framework proposed', *The Journal of Higher Education*, 78(2), pp. 215-237.

Mansour, N. (2013) 'Modelling the sociocultural contexts of science education: the teachers' perspective,' *Research in Science Education*, 43, pp. 347-369.

Martin, J. (2007) *The 17 great challenges of the twenty-first century*. Available at: www.elon.edu/docs/e-web/predictions/17_Great_Challenges.pdf (Accessed: 13 January 2019).

Marton, F. and Säljö, R. (1976) 'On qualitative differences in learning: outcome and process,' *British Journal of Educational Psychology*, 46, pp. 4-11. doi:10.1111/j.2044-8279.1976.tb02980.x.

Marzano, R. J. (2003) *What works in schools: Translating research into action*. Alexandria, VA: ASCD.

McDonagh, A. and McGarr, O. (2015). 'Technology leadership or technology somnambulism? Exploring the discourse of integration amongst information and communication technology coordinators', *Irish Educational Studies*,

34(1), pp. 55-68. DOI: 10.1080/03323315.2015.1010292.

McDonough, G.P. (2012) 'Teaching practitioners about theory and practice: a proposal to recover Aristotle in teacher education', *Journal of Thought*, pp.7-22.

McGirr, O. and Alrayash, N. (2017) 'An exploration of Bahrain Polytechnic stakeholder experiences of the use of e-portfolios', *Bahrain Polytechnic E-Learnit 2017 Conference: E-Learning Excellence in Higher Education*. Manama, Kingdom of Bahrain, 2-3 April 2017, Bahrain Polytechnic, pp.1-26. Available at: http://ppjbl.polytechnic.bh/proceedings_1/eLearnitDay1.pdf. (Accessed: 06 January 2020).

McGregor, S.L.T. (2004) *The nature of transdisciplinary research and practice*. Available at: http://www.kon.org/hswp/archive/transdiscipl.pdf (Accessed: 04 April 2018).

Mckernan, J. (1991) *Curriculum action research: a handbook of methods and resources for the reflective practitioner*. London and New York: Routledge.

McNiff, J. (2005). *Action research for teachers: a practical guide*. London, UK: David Fulton Publishers.

Merriam, S.B. (1998). *Qualitative research and case study applications in education.* San Francisco, CA: Jossey-Bass.

Meo, S.A., Mahesar, A., Sheikh, S.A., Sattar, K., and Bukhari, I.A. (2016). 'Research productivity of Gulf Cooperation Council (GCC) countries in science and social sciences', *Journal of the Pakistan Medical Association*, 66(10), Available at: https://jpma.org.pk/article-details/7940. (Accessed: 14January 2020).

Meyer, B., Haywood, N., Sachdev, D., and Faraday, S. (2008) *Independent learning: literature review*. London: Department for Children, Schools and Families Research Report 051, 2008. Available at: http://www.curee.co.uk/files/publication/%5Bsitetimestamp%5D/Whatisindependentlearningandwhatarethebenefits.pdf. (Accessed: 16 July 2019).

Miao, C., Fang, D., Sun, L., Luo, Q. (2017) 'Natural resources utilization efficiency under the influence of green technological innovation,' *Resources, Conservation & Recycling*, 126, pp. 153-161.

Miller, H. J., Garciduenas, R., Green, R. S., Shatola, K., and Enmba, E. (2008) 'What teachers want in their leaders: Voices from the field', *CAPEA Education Leadership and Administration*, 20, pp. 57–63.

Mirza, C. and Karolak, M. (2019) 'GCC labor market, education and Generation Y females: a match or mismatch?', *Journal of International Women's Studies,* 20(2), pp. 165-181. Available at: https://vc.bridgew.edu/jiws/vol20/iss2/. (Accessed: 09 December 2019).

Mohebi, L. (2019a) 'Leaders´ Perception of ICT integration in private schools: an exploratory study from Dubai (UAE)', *Social Science Research Network,* Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3401811 (Accessed: 04 January 2020).

Mohebi, L. (2019b) 'Towards a general framework for ICT and e-learning educational policy in the United Arab Emirates', *Social Science Research Network*, Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3441563 (Accessed: 08 January 2020).

Montebon, D.R.T. (2018) 'Pre-service teachers' concept of sustainable development

and its integration in science lessons', *Jurnal Pendidikan Humaniora*, 6(1), pp. 1-8. Available at: http://journal.um.ac.id/index.php/jph. (Accessed: 24 November 2019).

Moon, J. (2004). *A handbook of reflective and experiential learning: theory and practice*. London: Routledge Falmer.

Moore, M. (2011) 'Teaching physicians to make informed decisions in the face of uncertainty: librarians and informaticians on the health care team', *Academic Medicine*, 86(11), 1345. DOI: 10.1097/ACM.0b013e3182308d7e.

Mora, M. (2011). *Validity and reliability in surveys*. Available at: https://www.relevantinsights.com/blog/validity-and-reliability (Accessed: 01 July 2020).

Mossman, A.P. (2018) 'Retrofitting the ivory tower: engaging global sustainability challenges through interdisciplinary problem-oriented education, research, and partnerships in U.S. higher education,' *Journal of Higher Education Outreach and Engagement*, 22(1), pp. 35-60.

Mucundanyi, G. (2019) *College student engagement in online learning*. Doctoral dissertation. New Mexico State University, USA. Available at: https://search.proquest.com/openview/d27db84a2a7e439ad3fd48d79dea1845/1?pq-origsite=gscholar&cbl=18750&diss=y (Accessed: 03 January 2020).

Muijs, D., and Harris, A. (2003) 'Teacher leadership—Improvement through empowerment?'. *Educational Management and Administration*, 31, 437–448. Available at: http://dx.doi.org/10.1177/0263211X030314007 (Accessed: 05 June 2020).

Murchu, D. and Muirhead, B. (2005) 'Insights into promoting critical thinking in

online classes,' *International Journal of Instructional Technology and Distance Learning*, 2(6). Available at: http://itdl.org/Journal/Jun_05/article01.htm. (Accessed: 07 July 2019).

Nandan, M. and London M. (2013) 'Interdisciplinary professional education: training college students for collaborative social change', *Education +Teaching*, *55*(8/9), pp. 815-835. Available at: https://works.bepress.com/monica_nandan/41/ (Accessed: 05 January 2020).

Neumann, R. (1994) 'The teaching-research nexus: applying a framework to university students' learning experiences,' *European Journal of Education*, 29(3), pp. 323-338.

Newell, W. (2010) 'Educating for a complex world: integrative learning and interdisciplinary studies,' *Liberal Education*, 96(4), pp. 6-11.

Nicolescu B. (2018) 'Transdisciplinary evolution of the university condition for sustainable development,' in Fam D., Neuhauser, L., and Gibbs P. (eds,) *Transdisciplinary Theory, Practice and Education*. Cham: Springer, pp. 73-81.

Noffke, S. (1997) 'Professional, personal, and political dimensions of action research,' *Review of Research in Education*, 22(1), pp. 305-343.

Noregs Forskningsrad (2004). The evaluation of reform 97. Available at: http:// www.forskningsradet.no (Accessed: 07 June 2020).

Norem, J. (1989) 'Cognitive strategies as personality: effectiveness, specificity, flexibility, and change', in Buss, D.M. and Cantor, N. (eds.) *Personality psychology. Recent trends and emerging directions.* New York: Springer-Verlag, pp.45-60.

Nortcliffe, A. (2005) 'Student-driven module: promoting independent learning,' *International Journal of Electrical Engineering Education*, 42(3), pp. 247-266. Available at: https://doi.org/10.7227/IJEEE.42.3.4. (Accessed: 11 November 2019).

Nurmi, J-E. (1989) 'Adolescents' orientations to the future. Development of interests and plans, and related attributions and affects, in the life-span context', *Commentationes Scientatiarum Socialium*, 39, pp. 1–71.

O'Hanlon, C. (1996) *Professional development through action research in educational settings*. Washington DC: Falmer.

Okogbaa, V. (2017) 'Preparing the teacher to meet the challenges of a changing world,' *Journal of Education and Practice*, 8(5), pp. 81-86.

Oman Vision 2040 (2019) *National Priorities*. Available at: https://www.2040.om/en/national-priorities/ (Accessed: 23 February 2015).

Oplatkaa, I. and Arar, K. (2017) 'The research on educational leadership and management in the Arab world since the 1990s: A systematic review', *Review of Education*, *5*(3), pp. 267-307. Available at: https:/doi.org/10.1002/rev3.3095 (Accessed 07 January 2020).

Patterson, F. (2018) 'On the issues of digital competence in educational contexts – a review of literature', *Education and Information Technologies, 23*(3), pp. 1005–1021. Available at: https://doi.org/10.1007/s10639-017-9649-3 (Accessed: 07 January 2020).

Paulson, F. L., Paulson, P. R., and Meyer, C. A. (1991) 'What makes a portfolio a portfolio? Eight thoughtful guidelines will help educators encourage self-directed learning', *Educational Leadership*, 48(5), pp. 60–63.

Pintrich, P. R. (2000) 'The role of goal orientation in self-regulated learning', in Boekaerts, M., Pintrich, P. and Zeitner, M. (eds.) *Handbook of self-regulation*. San Diego, CA: Academic Press, pp. 451-502.

Porras, A. (2017) 'Social network analysis in education – from online environments to classrooms', *Ammattikasvatuksen Aikakauskirja, 19*(3), pp. 24-38. Available at: https://akakk.fi/wp-content/uploads/AKAKK-3.2017-NET.pdf (Accessed 06 January 2020).

Pratiwi, D. et al. (2018) 'The development of performance-based model authentic assessment on archival subject', *The First International Research Conference on Economics and Business (IRCEB)*. Malang, Indonesia, 11-12 December 2017, KnE Social Sciences, *3*(3), pp.150–166. Available at: https://doi.org/10.18502/kss.v3i3.1881. (Accessed: 04 January 2020).

Priestley, M., Biesta, G. J. J., and Robinson, S. (2012) 'Understanding teacher agency: The importance of relationships', *The Annual Meeting of the American Educational Research Association*, Vancouver, Canada, 13–17 April 2012.

Radesky, J.S., Kistin, C.J., Zuckerman, B. Nitzberg, K., Gross, J., Kaplan-Sanoff, M., Augustyn, M., and Silverstein, M. (2014) 'Patterns of mobile device use by caregivers and children during meals in fast food restaurants', *Pediatrics*, 133(4), pp. 843-849. Available at: https://pediatrics.aappublications.org/content/pediatrics/133/4/e843.full.pdf. (Accessed: 29 April 2019).

Raheim, M. et al. (2016). 'Researcher-researched relationship in qualitative research: shifts in positions and researcher vulnerability', *International Journal of Qualitative Studies on Health and Well-Being*, 11: 30996, Available at: http://dx.doi.org/10.3402/qhw.v11.30996. (Accessed: 03 January 2020).

Ramberg, M. R. (2014) 'What makes reform work? Schoolbased conditions as predictors of teachers' changing practice after a national curriculum reform', *International Education Studies*, 7, 46–65.

Ramdiah, S., Abidinsyah, B.P., Royani, M., and Husamah, H. (2019) 'Understanding, planning, and implementation of HOTS by senior high school biology teachers in Banjarmasin-Indonesia', *International Journal of Instruction*, 12(1), pp. 425-440. Available at: https://files.eric.ed.gov/fulltext/EJ1201152.pdf. (Accessed: 08 January 2020).

Renkl, A., Atkinson, R. K., Maier, U. H., and Staley, R. (2002) 'From example study to problem solving: smooth transitions help learning', *Journal of Experimental Education*, 70 (4), pp. 293–315.

Repko, A.F., Szoztak, R. and Buchberger, M.P. (2017) *Introduction to Interdisciplinary Studies*. 2nd edn. London, U.K.: Sage Publications, Ltd.

Rhoten, D., O'Connor, E., and Hackett, E.J. (2009) 'The act of collaborative creation and the art of integrative creativity: originality, disciplinarity and interdisciplinarity,' *Thesis Eleven*, 96, pp. 83–108.

Richards, H. (2019). *Exploring female perceptions of metacognitive development in online learning*. Doctoral dissertation. Concordia University, Portland-Oregon, USA. Available at: https://commons.cu-portland.edu/edudissertations/316/ (Accessed: 03 January 2020).

Richardson, J. T. E. (1997) 'Meaning orientation and reproducing orientation: a typology of approaches to studying in higher education?', *Educational Psychology*, 17, pp. 301–311.

Rivkin, S. G., Hanushek, E. A., and Kain, J. F. (2005) 'Teachers, schools, and

academic achievement', *Econometrica*, 73, 417–458. Available at: http://dx.doi.org/10.1111/ecta.2005.73.issue-2 (Accessed: 03 June 2020).

Roberts, P. (2014) *Investigating an ePortfolio-based learning environment for developing reflection with preservice teachers*. Doctoral dissertation. Murdoch University, Perth, Australia. Available at: http://researchrepository.murdoch.edu.au/22150/ (Accessed: 12 March 2019).

Roberts, P. (2016) 'Reflection: a renewed and practical focus for an existing problem in teacher education,' *Australian Journal of Teacher Education*, 41(7), Article 2, pp. 18-35. Available at: https://files.eric.ed.gov/fulltext/EJ1116400.pdf. (Accessed: 09 December 2019).

Roberts, M.J. and Erdos, G. (1993) 'Strategy selection and metacognition', *Educational Psychology*, 13, pp. 259-266.

Robertson, J. and Bond, C. H. (2001) 'Experiences of the relation between teaching and research: what do academics value?', *Higher Education Research and Development*, 20(1), pp. 5-20.

Rockland, R. (2001) 'Utilization of pre-and-post-assessment testing for reinforcing learning processing in ECET courses,' *Proc. Intl. Conf. on Engineering Education (ICEE)*. Norway, 6-10 August 2001. pp. 6E713-6E715. Available at: http://www.ineer.org/Events/ICEE2001/Proceedings/papers/150.pdf. (Accessed: 01 December 2019).

Rogers, R. R. (2001) 'Reflection in higher education: a concept analysis', *Innovative Higher Education*, 26(1), pp. 37-57.

Romer P., (2007) 'Economic growth', *The concise encyclopedia of economics*. Available at: https://www.econlib.org/library/Enc1/EconomicGrowth.html.

(Accessed: 24 May 2019).

Rosenberg, M. J., and Hovland, C. I. (1960) Cognitive, affective, and behavioral components of attitudes. In M. J. Rosenberg and C. I. Hovland (Eds.), Attitude organization and change: An analysis of consistency among attitude components (pp. 112–163). New Haven, CT: Yale University Press.

Rowan, D., Richardson, S., and Long, D.D. (2018) 'Practice-informed research: contemporary challenges and ethical decision-making,' *Journal of Social Work Values and Ethics,* 15(2), pp.15-22. Available at: http://jswve.org/download/15-2/articles15-2/15-Practice-informed-research-JSWVE-15-2-2018-Fall.pdf. (Accessed: 05 January 2020).

Royal Geographical Society (2016) *Energy-Water-Food Stress Nexus*. Available at: https://21stcenturychallenges.org/nexus-2/ (Accessed: 07 March 2019).

Ryan, M. (2011) 'Improving reflective writing in higher education: a social semiotic perspective', *Teaching in Higher Education*, 16(1), pp. 99–111. Available at: http://dx.doi.org/10.1080/13562517.2010.507311 (Accessed: 20 October 2019).

Ryan, M. (2013) 'The pedagogical balancing act: teaching reflection in higher education,' *Teaching in Higher Education*, 18(2), pp. 144-55.

Salem, F and Mourtada, R. (2011) 'Civil movements: the impact of Facebook and Twitter,' *Arab social media report of Dubai School of Government,* 1(2). Available at: http://unpan1.un.org/intradoc/groups/public/documents/dsg/unpan050860.pdf (Accessed: 24 May 2019).

Salter, M.B. (2013) 'Crowdsourcing: student-driven learning using web 2.0

technologies in an introduction to globalization,' *Journal of Political Science Education*, 9, pp. 362-365.

Samancioğlu, M. et al. (2015) 'The relationship between technology leadership roles and profiles of school principals and technology integration in primary school classrooms', *Journal of Educational Sciences Research, 5*(2), pp.77-96. Available at: https://dergipark.org.tr/en/download/article-file/697813 (Accessed: 02 January 2020).

Sangkawetai, C. et al. (2018) 'Predictors of K-12 teachers' instructional strategies with ICTs', *Technology, Knowledge and Learning,* doi.org/10.1007/s10758-018-9373-0.

Sappington, N., Pacha, J., Baker, P., and Gardner, D. (2012). 'The organized contradictions of professional development and school improvement', *International Journal of Educational Leadership Preparation*, 7(1), pp.1–11.

Sarason, S. B. (1971) *The culture of the school and the problem of change*. Boston, MA: Allyn and Bacon.

Scheid, K. (1993) *Helping students become strategic learners: guidelines for teaching*. Cambridge, MA: Brookline Books.

Schon, D. A. (1983) *The reflective practitioner*. London, UK: Basic Books.

Schwab, K. (Ed.) (2011). The Global competitiveness report 2011-2012. Geneva, Switzerland: World Economic Forum.

Schwartz, D.L. and Bransford, J.D. (1998) 'A time for telling,' *Cognition and Instruction*, 16(4), pp. 475-522.

Shaw, C.M. (2004) 'Using role-playing scenarios in the IR classroom: an examination

of exercises on peacekeeping operations and foreign policy decision making,' *International Studies Perspectives,* 5, pp. 1-22.

Short, K. (2018) *Effects of teaching methods on achievement of English language learners*. Doctoral dissertation. Walden University, USA. Available at: https://scholarworks.waldenu.edu/dissertations/4945/ (Accessed: 01 January 2020).

Shum, S.B. and Crick, R.D. (2016), 'Learning analytics for 21st Century competencies,' *Journal of Learning Analytics,* 3(2), pp. 6-21.

Smith, E. (2011). Teaching critical reflection, *Teaching in Higher Education,* 16(2), pp. 211-223.doi: 10.1080/13562517.2010.515022.

SMYTH, J. (1992) 'Teachers' work and the politics of reflection', *American Educational Research Journal,* 29(2), pp. 267-300.

Spohn, W. C. (2003) *Reasoning from practice*: s*yllabus narrative for the Carnegie 'A life of the mind for practice' seminar*. Stanford, CA: The Carnegie Foundation for the Advancement of Teaching.

Spring, J. (2006). Pedagogies of globalization, *Pedagogies: An International Journal,* 1(2), pp. 105-122.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: SAGE Publications.

Yin, R. K. (2002). Case study research: Design and methods. Thousand Oaks, CA: SAGE Publications.

Steiner, L. (2004) *Designing effective professional development experiences: What do we know?* Naperville, IL: Learning Point.

Stock, M., and Koeppel, T. (2012) 'ePortfolio-Begleitung im Masterstudium

Wirtschaftspädagogik [ePortfolio in the master's program of business education and development], *wissenplus*, 11/12(5), pp. 10–14.

Stoll, L., Creemers, B. P. M., and Reezigt, G. (2006) 'Effective school improvement: Similarities and differences in improvement in eight European countries', in A. Harris and J. H. Chrispeels (Eds.), *Improving schools and educational systems: International perspectives* (pp. 90–106). London: Routledge.

Stringer, E. (2008) *Action research in education*. Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.

Su, Y.S, Yang, J.H, Hwang, W.Y., Huang, S.J. and Tern, M.Y. (2014) 'Investigating the role of computer-supported annotation in problem solving based teaching: an empirical study of a scratch programming pedagogy. *Br. J. Educ. Technol.*, 45, pp. 647-665.

Sukmayadi, V. and Effendi, R. (2018) 'Social media emotion in politics: An Indonesian case study of political environment on Facebook', *IOP Conference Series: Earth and Environmental Science*, *145* (012009). doi :10.1088/1755-1315/145/1/012009.

Svensson, L. (1977) 'On qualitative differences in learning: study skill and learning,' *British Journal of Educational Psychology*, 47, pp. 233-243

Tai, M.K and Abdullkareem, O. (2018) 'Headteacher change leadership competency: a study in Malaysian primary schools', *Professional Development in Education*, DOI: 10.1080/19415257.2018.1561494.

TAMKEEN (2010) *Market Gap Study: The Market Gap Report*. Available at www.tamkeen.bh/research-studies (Accessed: 5 March 2019).

Tarrant, S.P. and Thiele, L.P. (2016) 'Practice makes pedagogy – John Dewey and skills-based sustainability education,' *International Journal of Sustainability*

*in Higher Education, 17(*1), pp. 54-67. Available at: https://doi.org/10.1108/IJSHE-09-2014-0127. (Accessed: 16 August 2019).

Tashakkori, A. and Creswell, J. W. (2007) 'Editorial. The New Era of Mixed Methods', *Journal of Mixed Methods Research* 1(1), pp. 3–7.

Terhart, E. (2017) 'Interdisciplinary research on education and its disciplines: Processes of change and lines of conflict in unstable academic expert cultures: Germany as an example,' *European Educational Research Journal,* 16(6), pp. 921-936.

The Center for Comprehensive School Reform and Improvement. (2009a, June). *Designing effective school improvement strategies*. Available at: http://files.eric.ed.gov/fulltext/ED506366.pdf (Accessed 22 November 2015).

The Center for Comprehensive School Reform and Improvement. (2009b, August). *Voices from the field: How school boards can support district wide school improvement efforts*. Available at: http://eric.ed.gov/?q=voices+from+the+filed%3a+how+school+boards+can+support+districtwide+school+improvement+efforts&id=ED507578 (Accessed: November 22, 2015).

The Higher Education Academy (2014) *Independent learning*. York, United Kingdom: The Higher Education Academy. Available at: https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document manager/documents/hea/private/resources/independent_learning_1568037224.pdf. (Accessed: 19 August 2019).

Thomas, D.R. (2003) *A general inductive approach for qualitative data analysis*. Paper presented at School of Population Health, University of Auckland, New Zealand, August. Available at: http://frankumstein.com/PDF/Psychology/Inductive%20Content%20Analysis

.pdf (Accessed: 16 August 2019).

Tomcho, T.J. and Foels, R. (2002) 'Teaching acculturation: developing multiple cultures in the classroom and role-playing the acculturation process', *Teaching of Psychology*, 29, pp. 226-229.

Tong, A., Flemming, K., McInnes, Oliver, E. S., and Craig, J. (2012) 'Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ', *BMC Medical Research Methodology*, 12, p.181.

Tseng, C.Y. (2014) 'Technological innovation capability, knowledge, sourcing and collaborative innovation in Gulf Cooperation Council countries,' *Innovation: Management, Policy & Practice*, 16(2), pp. 212-223.

Tshelane, M.D. (2015) *Enhancing the principal's leadership role in the usage of information and communication technology at school*. Doctoral dissertation. University of the Free State, Bloemfontein, South Africa. Available at: http://scholar.ufs.ac.za:8080/xmlui/bitstream/handle/11660/769/TshelaneMD.pdf;jsessionid=BED223FAC4BFB0D888D2F77D5C7E44FF?sequence=1 (Accessed: 06 January 2020).

UNESCO (2010) *Education for sustainable development lens: a policy and practice review tool, No. 2*. Available at: http://unesdoc.unesco.org/images/0019/001908/190898e.pdf (Accessed: 27 December 2019).

UNESCO (2018) *Education for sustainable development*. Available at: https://en.unesco.org/themes/education-sustainable-development (Accessed: 30 January 2019).

Unkelbach, C. (2013) Social Psychology – Change and Consistency. *Social Psychology*, *44*(1), pp. 1-3. Available at: http://dx.doi.org/10.1027/1864-9335/a000135 . (Accessed: 27 December 2019).

Vandiver, D.M. and Walsh, J.A. (2010) 'Assessing autonomous learning in research methods courses: implementing the student-driven research project,' *Active Learning in Higher Education, 11*(1), pp. 31-42.

van Rossum, E.J. and Schenk, S.M. (1984) 'The relationship between learning conception, study strategy, and learning outcome,' *British Journal of Educational Psychology*, 54(1), pp. 73-83. doi: 10.1111/j.2044-8279.1984.tb00846.x.

Vermeulen, M. et al. (2016) 'The role of transformative leadership, ICT-infrastructure and learning climate in teachers' use of digital learning materials during their classes', *British Journal of Educational Technology, 48*(6), pp. 1427-1440. Available at: https://doi.org/10.1111/bjet.12478 (Accessed: 08 January 2020).

Vermunt, J. D. H. M. and Verloop, N. (1999) 'Congruence and friction between learning and teaching,' *Learning and Instruction*, 9, pp. 257–280.

Viswambharan, A. P. and Priya, K. R. (2016) 'Documentary analysis as a qualitative methodology to explore disaster mental health: insights from analyzing a documentary on communal riots', *Qualitative Research*, 16(1), pp. 43–59.

Vision 2030 Kingdom of Saudi Arabia, (2019) *Vision*. Available at: https://vision2030.gov.sa/en/node/10 (Accessed: 15 June 2019).

Vittadini, N., Milesi, D., and Aroldi, P. (2013) 'New-generation ties: identity, social relations and digital technologies among 2G migrants in Italy,' *Observatorio*, pp. 61-88.

Wagner, T. (2011). The global achievement gap. Available at: http://www.tonywagner.com/69 (Accessed: 20 January 2019).

Watkins, D. (2001) 'Correlates of approaches to learning: a cross-cultural meta-analysis', in Sternberg, R.J. and Zhang, L. F. (eds.) *Perspective on thinking, learning, and cognitive styles*. Mahwah, NJ: Lawrence Erlbaum Associates, pp.165-196.

Watson, G. (2014). Teaching critical reflection to graduate students, '*Collected Essays on Learning and Teaching*,' 7(1). Available at: https://files.eric.ed.gov/fulltext/EJ1060232.pdf (Accessed: 21 November 2019).

Wendt, A. (1976) '1976 Towards a New Oceania,' *Mana Review*, 1(1), pp. 49–60. Available at: https://ethnc3990.files.wordpress.com/2014/12/wendt-toward-a-new-oceania.pdf (Accessed: 29 December 2019).

Westermann, K. and Rummel, N. (2012) 'Delaying instruction: evidence from a study in a university relearning setting,' *Instructional Science*, 40(4), pp. 673-689.

Wiggins, S. et al. (2016) 'Ask not only 'what can PBL do for psychology?' but 'what can psychology do for PBL? A review of the relevance of problem-based learning for psychology teaching and research' *Psychology Learning & Teaching*, *15*(2), pp.136-154. Available at: https://doi.org/10.1177/1475725716643270 (Accessed: 01 January 2020).

Wiseman, A.W. and Anderson, E. (2012), 'ICT-integrated education and national innovation systems in the Gulf Cooperation Council (GCC) countries,' *Computers & Education*, 59, pp. 607-618.

Wiseman, A.W. and Al-Bakr, F. (2013) 'The elusiveness of teacher quality: A comparative analysis of teacher certification and student achievement in Gulf Cooperation Council (GCC) countries,' *Prospects: Quarterly Review of Comparative Education*, 43(3), pp. 289-309. Available at: https://eric.ed.gov/?id=EJ1038603 (Accessed: 01 April 2019).

Woo, E., White, P., and Lai, C. (2016) 'Impact and information communication technology on child health,' *Journal of Pediatrics and Child Health*, 52, pp. 590-*594*.

World Health Organization [WHO] (2007) *International health regulations 2005: areas of work for implementation*. Available at:

https://www.who.int/est/ihr/IHR_Areas_of_work.pdf (Accessed: 10 October 2019).

World Health Organization [WHO] (2019) *Childhood Overweight and Obesity*. Available at: http://www.who.int/dietphysicalactivity/childhood/en/ (Accessed: 11 November 2019).

Yasmin, M. Naseem, F., and Masso, I.C. (2019) 'Teacher-directed learning to self-directed learning transition barriers in Pakistan,' *Studies in Educational Evaluation*, 61, pp. 34-40.

Yasmin, M., Souhail, A., Sarkar, M., and Hafeez, R. (2017) 'Creative methods in transforming education using human resources,' *Creativity Studies,* 10(2), pp. 145-158.

Yin, R. K. (2002). *Case study research: Design and methods*. Thousand Oaks, CA: SAGE Publications. Yuen, S.P. (2010) 'Towards a hermeneutic conception of social work practice: Social work skills and moral practice' in Ho, Y. Y. and Ruan, X.B (eds.) *Reconstitutions of social worker: towards a moral conception of social work practice*. Singapore: Stallion Press, pp.53-106.

Ybarra, M.L., Mitchell, K.J., Wolak, J., and Finkelhor, D. (2006) 'Examining characteristics and associated distress related to internet harassment: findings from the second youth internet safety survey, *PEDIATRICS*, 118(4), pp. e1169–e1177. Available at: DOI: https://doi.org/10.1542/peds.2006-0815 (Accessed: 20 May 2019).

Zheng, R. and Greenberg, K. (2018) 'Design in human machine learning: a cognitive perspective', in Zhou, J. and Chen, F. (eds.), *Human and Machine Learning. Human–Computer Interaction Series*. Cham, Springer International Publishing AG, pp. 55-74.

Zou, T.X.P., Mickleborough, N.C., Ho, S.S.M., and Yip, S.Y.W. (2015) 'Students as learning experience designers: the effect of student driven approaches in a

Hong Kong study,' *International Journal of Pedagogies and Learning,* 10(3), pp. 179-193.

Zeichner, K. M. (2008) 'A critical analysis of reflection as a goal for teacher education', *Educação e Sociedade [Education and Society],* 29(103), pp. 535-554. Available at: http://dx.doi.org/10.1590/S0101-73302008000200012 (Accessed: 30 January 2020).

Zuber-Skerritt, O. (1996) *New directions in action research*. London: Falmer.

APPENDIX A

References for Included Publications

Abdul Razzak, N. (2011) 'Role-playing in the classroom: Reactions and gender differences of students from a conservative culture', *Journal of Middle East Women's Studies*, 7(2), pp. 89-102. (Paper #1)

Abdul Razzak, N. (2012a), 'Problem-based learning in the educational psychology classroom: Bahraini teacher candidates' experience', *International Journal of Teaching and Learning in Higher Education*, 24(2), pp. 134-143. (Paper #2)

Abdul Razzak, N. (2013a) 'The effectiveness of a university-based professional development programme in developing Bahraini school leaders' management and leadership competencies of implementing effective school-wide professional development and ICT integration', *Professional Development in Education*, 39(5), pp. 732-753. DOI:10.1080/19415257.2012.759127. (Paper #3)

Abdul Razzak, N. (2013b) 'Challenges facing school leadership in promoting ICT integration in instruction in the public schools of Bahrain', *Education and Information Technologies*, 20(2), pp. 303-318. DOI:10.1007/s10639-013-9283-7. (Paper #4)

Abdul Razzak, N. (2014) 'In-service teachers' attitudes towards technology integration in the Bahraini classroom', *World Journal on Educational Technology*, 6(1), pp. 60-74. (Paper #5)

Abdul Razzak, N. (2015a) 'An evaluation of an integrated e-portfolio model: the case of Bahrain Teachers' College. Paper presented at the *IEEE 2015 Fifth International Conference on E-Learning*, Manama, Kingdom of Bahrain (October 18-20, 2015). DOI 10.1109/ECONF.2015.45 (Paper #6)

Abdul Razzak, N. (2016a) 'Teachers' experiences with school improvement projects: the case of Bahraini public schools', *Cogent Education,* 3(1), *DOI*:10.1080/2331186X.2016.1229898. (Paper #7)

Abdul Razzak, N. (2016b) 'Strategies for effective faculty involvement in online activities aimed at promoting critical thinking and deep learning', *Education and Information Technologies,* 21(4), pp. 881-89. DOI: 10.1007/s10639-014-9359-z. (Paper #8)

APPENDIX B

References for Publications Referred to But Not Included

Abdul Razzak, N. (2020) 'Paulo Freire's dialogic and critical pedagogy and its implications for the Bahraini educational context', *Educational Philosophy and Theory*. Available at: https://doi.org/10.1080/00131857.2020.1716731 (Accessed: 30 January 2020).

Abdul Razzak, N. (2012b). *The missing link: Teachers' professional development and implementation in the Bahraini classroom.* Paper presented at the Gulf Comparative Education Society's Third Annual Symposium on Global Innovation, Local Transformation: Trends and Reactions (March 24-25, 2012), Crowne Plaza Hotel, Manama-Bahrain. United Arab Emirates: Sheikh Saud Bin Saqr Al Qasimi Foundation for Policy Research.

Abdul Razzak, N. (2015b) 'The lived-through experience of the senior teacher: a closer look at a middle management and leadership position in Bahraini public schools', *Cogent Education*, 2(1). Available at: http://dx.doi.org/10.1080/2331186X.2015.1123084 . (Accessed: 30 March 2019).

Abdul Razzak, N. (2018). Bahrain. In A. Weber and S. Hamlaoui (Eds.), E-Learning in the Middle East and North Africa. Cham, Switzerland: Springer International Publishing AG.

Abdul Razzak, N. and Albaker, K. (2015). Leading and Managing Action Research for School Improvement: The Case of Bahraini Schools. In: *Private and Public Schools: International Perspectives, Management and Educational Efficiency* (Edited by Gina Abbott). New York, USA: Nova Science Publishers.

APPENDIX C

Table 1

Activity/Task	Description	Date/Time Period	Approximate Duration
1) **Starting the PhD by Publication Programme**	Official date of enrolment	March 1, 2019	
2) **Working on Thesis/ Dissertation**	Working closely with research supervisors on preparation of the commentary in the following sequence:		
	1. Developing and finalizing the introduction section of the commentary	March 1-April 1, 2019	4weeks
	2. Themes (4 themes)	April 1- June 1, 2019	8 weeks
	3. Reflections on Being a Researcher in a Context of Educational Reform	June 1- June 15, 2019	2 weeks
	4. Contribution of Research Works to Knowledge and Scholarship	June 15 –July 30, 2019	6 weeks
	5. Reflections on Individual Publications	July 30- August 15, 2019	6 weeks
	6. Conclusions	August 15– September 7, 2019	3 weeks
	7. References + Appendix A + Appendix B	September 7 - September 21, 2019	2 weeks

Time Plan

APPENDIX D
Mapping Matrix

*Key for understanding the matrix

P1 Teachers' Experiences with School Improvement Projects
P2 An Evaluation of an Integrated E-Portfolio Model
P3 In-Service Teachers' Attitudes Toward Technology Integration
P4 Strategies for Effective Faculty Involvement in Online Activities
P5 The Effectiveness of a University-Based Professional Development Programme
P6 Challenges Facing School Leadership in Promoting ICT Integration
P7 Problem-Based Learning in the Educational Psychology Classroom

E = Explicit
EMB = Embedded

Theme	Research Opportunities and Restrictions (Theme A)	Challenges in the Development and Teaching of 21st Century Skills (Theme B)	Tendency Toward a Conservative Culture of Teaching and Learning (Theme C)	Emphasis on Student-Driven Learning (Theme D)
Paper				
P1	E	E	EMB	
P2	E	E	EMB	E
P3	E	E	E	E
P4	EMB	E	E	E
P5	E	EMB	E	E
P6	E	E	E	E
P7	E	E	E	E
P8	EMB	E	E	E

APPENDIX E

Table 2: Points of Intersection Between Publications and Themes

Point of Intersection	Main Points/Contributions Made by the Paper Toward the Theme	Relevant Ideas/Literature/Sources
P1/A	**Theme: Research Opportunities and Restrictions** Not much has been written if anything on school improvement in Bahrain. The scarcity of research studies in this area, therefore, critically called for a study such as P1 (p. 4). P1 fills an existing research gap on Bahrain with respect to school improvement.	• A relevant idea is the challenge of not being able to access schools to directly evaluate/research how the SI projects are being implemented and to what extent. • A research opportunity here was through conducting the HOTS' training on a group of in-service teachers and, as a result, gaining access to the evaluation/feedback sheets on their HOTS' implementation attempts.
P2/A	This study is most probably one of a kind, since it seems to be the first and only research study on e-portfolio implementation in the Kingdom of Bahrain. This makes it, in a sense, unique and adds to its value as a reference point for other future studies in the country. Also, the Integrated E-Portfolio Model (IEM) which the researcher developed, and which is the focal point of the research study, is unique (nothing like it in Bahrain) and could be used as a stepping-stone and guide for colleges interested in newly adding e-portfolio implementation to their practices. So P2 is unique not just because it is the only study on e-portfolio implementation but also because it studies a model like nothing else in Bahrain. The review of the literature showed that e-portfolio implementation is not simple and involves many challenges. The researcher saw this as a research opportunity because it gave her a better reason to monitor and	• The research opportunity here was that the researcher was from the beginning heavily involved and highly interested in e-portfolio implementation at the College. So, she knew a lot about it and had access to all its related documents, which could inform the research.

	evaluate the implementation of the IEM through conducting a research study about it.	
P3/A	This study is unique in that it is the only one of its kind conducted in Bahrain regarding teachers' perceptions of ICT integration in schools. In fact, there is a dearth of research in ICT in education in general in Bahrain, which by itself adds to the significance of the study at hand. The strength of this study lies in its uniqueness, as was mentioned earlier, for filling an existing research gap on Bahrain.	• The research opportunity here was that the researcher was teaching a class of in-service teachers, who were enrolled in a professional development course at the BTC. So, she was able to survey them as well as other in-service teachers that they were in contact with.
P4/A	**(EMBEDDED ONLY)** A research opportunity here seems to be the gap in the international literature on how and why online tools are used in higher education and specifically by faculty (i.e. what do they hope to achieve by using them and whether they are succeeding); as, the greater focus in the research is on students' use of online tools rather than on faculty's (p. 886 of paper 4).	• A relevant point here is that of online strategies and tools having the potential to enhance students' HOTS, especially when there is efficient faculty engagement in the online environment.
P5/A	P5 fills a gap in the research on Bahrain with respect to professional development (PD) of school leaders. (p.2) Since, educational leaders' PD in Bahrain is an area that has been entirely neglected. Hence, the study is unique (p.4). In Bahrain, it is almost impossible for researchers to gain access into the public schools for conducting evaluations or studies of any type (p.5). Therefore, in this study, the researcher could not enter the schools and formally track and evaluate the school leaders' performance on the job. Thus, she relied in the research on the school leaders' own reports about how they were implementing in their schools what they were acquiring from their PD experiences (p.9). This was the alternative research	• The research opportunity here was that the researcher was teaching a class of assistant principals, who were enrolled in the Educational Leadership Programme (ELP) at the BTC. So, she was able to use them in her research as participants. • Another point of importance here is that the assistant principals were only enrolled part-time in the ELP programme and so had a chance to go back to their schools and apply what they were learning in their ELP modules.

	approach that the researcher chose, and it was a step further from just assessing per se the methods, processes, and structures of the PD programme itself (p.9). There is a pressing need to conduct research studies related to school leadership preparation programmes in Bahrain (p.2). P5 explicitly mentions (on p.19) a challenge that could possibly be present in all of the researcher's papers. It relates to how she as a BTC instructor of the research participants could have tinted the analysis of the data. This applies to all her papers.	
P6/A	This study is unique in that it is the only one of its kind conducted in Bahrain regarding assistant principals' perceptions of ICT integration in schools. (Research gap on Bahrain) (p.3 of paper 6).	• The research opportunity here was that the researcher was teaching a class of assistant principals, who were enrolled in the Educational Leadership Programme (ELP) at the BTC. So, she was able to use them in her research as participants.
P7/A	This study is unique since almost all studies related to problem-based learning (PBL) in Bahrain are related to medical science courses. This is the only study where it's related to educational psychology or teacher education and classroom practice, which are two areas in which PBL is still in its infancy and largely unexplored (p. 135 and p. 142 of paper 7).	• PBL was a required part in one of the undergraduate courses that the instructor was teaching and so this provided a good opportunity for her to conduct research on it.
P8/A	**(EMBEDDED ONLY)** This study fills a research gap on Bahrain since when the researcher was working on this study, she could not find any study related to role-playing in Bahrain in the literature.	• Role-playing, as an active learning strategy, is well-aligned with the BTC teaching and learning paradigm and so the researcher saw it as both relevant and worthy of investigation.
Point of Intersection	**Main Points/Contributions Made by the Paper Toward the Theme**	**Relevant Ideas/Literature/Sources**

P1/B	**Theme: Challenges in the Development and Teaching of 21st Century Skills** Part of this paper focused on assessing teachers' implementation of a school improvement project related to Higher Order Thinking Skills (HOTS). (HOTS= 21st Century Skills). The results of the study indicate difficulty for teachers in selecting and designing the right HOTS activities; inability to infuse HOTS in a lesson without moving away from the main content of the lesson; unsuitability of the activity for the targeted higher order thinking skill. Included in the national educational reform initiatives is the introduction of a number of school improvement projects, among them the infusion of higher-order thinking skills (HOTS) and other 21st Century skills in the teaching of all curricular areas to promote deep learning.	• Deep learning is of relevance here. The idea is that the teaching of HOTS promotes deep learning and one of the findings of this study indicates that a challenge for teachers in infusing HOTS in their lessons is that they tend to focus on the HOTS activity at the expense of the lesson content (i.e. there is insufficient presentation of lesson content). This indicates lack of depth in learning. Also, HOTS learning lacks authenticity and genuineness in most parts; so, there is superficiality and lack of authentic application. This is a challenge for deep learning objectives. (So deep learning is an embedded sub-theme in this paper).
P2/B	E-portfolios at BTC are used for reflection and self-assessment but e-portfolio implementation has always been faced with challenges and obstacles (Reflection=a 21st Century skill). E-portfolio implementation involves a reflective exercise in which the student evaluates their work, decides on which of them to include in their e-portfolios, and explains/justifies why each work was selected and how it demonstrates learning (i.e. the meeting of learning outcomes) Although students are able to reflect during their presentations on their overall BTC journey and what it means to them and on what competencies they acquired and how, their reflections remain in most part on the surface level and lack depth.	• Critical Reflection, self-assessment, evaluation, decision-making, selection, justification are involved in e-portfolio implementation. • Brooks and Rowley (2013) explain that students' use of technology to manage their knowledge, actively engages them in higher-order thinking needed for meaningful reflection. • W. Brooks and J. Rowley (2013). *Music students' perspectives on learning with technology*. In XIX National Conference of the Australian Society for Music Education. Canberra: ASME, 2013, pp. 30-36.

	-Through the e-portfolio, the following skills are in general demonstrated: improved reflection, written and/or verbal communication, organizational skills, technical skills, problem-solving, decision-making, higher-order thinking, and leadership and ownership of learning (all 21st Century skills). Still, however, we continue to notice among other deficiencies the following: superficial or shallow reflections. Recommendations made by the study in relation to the theme: • Greater infusion of higher-order thinking skills activities in all courses and classes, in order to prepare students better for producing higher quality e-portfolio reflections; • Making greater use of specific online activities, other than e-portfolios, (*such as LMS discussion boards/forums, LMS course group feature, EduBlogs, etc.*), which are usually preferred by the digital native students of today and that happen to provide students with extra opportunities for reflection, analysis, and critical thinking about what they learn, so that they can become better equipped with deep learning skills needed for effective e-portfolio implementation.	• Paul Treuer (1996) maintained that e-portfolio is a tool that helps deepen students' learning. So. e-portfolio assessment promotes deep learning and has all the essential features or requirements necessary for it, such as the ones spelled out by Harvey and Kamvounias (2008). These are: critical analysis, strong linkage of ideas and concepts, and clear connections and applications mainly to life experiences-all of which prepare graduates for life in the 21st Century.
P3/B	It is in schools where preparation for the 21st Century skills-like utilization of ICT in daily life and work- (i.e. digital literacy) takes place. The role of ICT in schools is successfully implemented mainly with the realization of certain conditions, primarily teachers' clear understanding of the elements involved in the concept and process of ICT integration and the adoption of a positive attitude towards the utilization and integration of ICT in instruction (Teo 2006; Huang and Liaw 2005; Zhao, Tan and Mishra 2001).	• There is an inferred link to deep learning in this paper on page 69, where it is mentioned that in some schools, students are not being given the opportunity to utilize technology in one of the basic ways in which it can be utilized to enhance and enrich learning.

P4/B	One problem concluded from this study is that almost all the old curricula still being used in the Bahraini schools lack objectives, activities, and assessment strategies tailored for the development and exercise of higher-order thinking skills (HOTS) described in Lorin Anderson's revised version of Bloom's Cognitive Taxonomy, mainly analysis, evaluation, and creativity, and in some severe cases, they are even are deficient in the lower-order skill of application (pp. 888-890). One suggestion towards the end of this paper is that of increasing higher education faculty involvement with students in online contexts, as a means for promoting deep learning and critical thinking, which are needed for success in the 21st Century. The rationale behind such a suggestion is this: many students are being pumped into higher education institutions from K-12 with poor critical thinking and deep learning competencies and so there is a serious need for some type of remedy for this weakness in higher education. In addition, students of today are fluent digital natives and may therefore be taught such skills more easily and thoroughly through means that speak their same digital language- means like edublogs, electronic discussion boards, wikis, e-portfolios, etc. There are a lot of research studies in the literature that indicate that online activities promote HOTS. (e.g. Chang 2012; Lopez-Perez et al. 2013; Moreland 2009; Jones et al. 2011; Mandernach 2006; MacKnight 2000; and Garrison and Anderson 2003). Despite all these benefits, however, critical thinking and deep learning do not seem to be exhibited enough in online environments (Maurino 2007). Bullen (1998) pointed out that one contributing factor to surface level	• A related idea here is that of active learning as promoting deep learning and reinforcing understanding and, thus, improving student outcomes (John Bigg's 1987). • There is a link in this paper to paper 7 (the PBL one), where both refer to the problem of the school system in Bahrain not preparing students enough in terms of critical thinking and deep learning. (pp. 884 and 885 of paper 4). • A related idea here is the need for teacher training in the following: - New curricula that are rich with content, activities and assessment tasks that address deep learning and critical thinking (pp.889, 890). -How to promote critical thinking in an online environment (p.883).

	learning is the relatively passive role of the facilitating instructor.	
P5/B	**<u>(EMBEDDED ONLY)</u>** The assistant principals (research participants) noticed the need to provide teachers with time to carry out group reflective sessions to reflect on their classroom practices and learn from one another (p.13 and p.14). These types of reflective sessions promote teachers' HOTs.	• A related idea here is that of Cunningham (2007), who explains that successful internships manage to improve, expand, and deepen leadership capacity. This implies that internship (or job-embeddedness) enables deep learning (p.6).
P6/B	One of the 21st Century skills is the ability to utilize ICT in daily life and work (p. 2 of paper 6). To be able to develop this 21st Century skill (i.e. digital literacy), successful ICT integration is required in schools. Paper 6 is full of challenges that face successful technology integration in schools.	• Challenges in integrating ICT in education are also found at the higher education level.
P7/B	Students entering BTC from high school appeared to have mainly a surface learning approach in contrast to a deep-learning one (p. 134 of paper 7). It is therefore important to implement strategies such as PBL in schools, to overcome this problem. Students in this research study were evaluated on 21st Century skills, such as on their demonstration of critical analysis, teamwork, planning, and communication during the PBL project implementation (p. 137 of paper 7). PBL implementation resulted in a high degree of teamwork, communication, planning, information processing, and critical thinking on the part of the students. (p.140) Students learnt to cooperate as a team and analysed concepts and ideas together, brainstormed, approached problems and explored plans to solve them, generated and evaluated different solutions for the problems, and came up with plausible and in	• Harvey and Kamvounias (2008) define a deep learning approach as one which involves critical analysis, the linking of ideas and concepts, creative problem solving, and application. • Results of this study show that educational contexts that are conducive to active student-centered learning promote deep learning (p. 141). • To implement PBL in schools, teachers need to be trained on how to design PBL, implement, and assess it in the different curricular areas they teach (p. 141 of paper 7). • Holen (2000) has shown that PBL facilitates the acquisition and organization of knowledge as well as the acquisition of several other generic desirable attributes such as communication skills,

	some cases creative solutions to problems (p.140 and 141).	teamwork, problem-solving skills, self-directed learning, sharing information, appreciation of other person's point of view and identification of strengths and weaknesses (p.141 of paper 7). • Brears, MacIntyre and O'Sullivan (2008) have demonstrated that complexity thinking, meta-cognition, intrinsic motivation, self-directed learning, self-reflection, and collaborative skills are all operationalized within the context of PBL- all of which are skills that are essential in meeting the social and educational needs of a 21st Century classroom (p. 142).
P8/B	BTC students were lacking in deep learning and other related skills or competencies needed to perform well at a professional college such as BTC. Some deep-learning competencies lacking are the meta-cognitive skill of self-regulation (pp. 91-92 of paper 8).	• Harvey and Kamvounias (2008) define a deep learning approach as one which involves critical analysis, the linking of ideas and concepts, creative problem solving, and application (p. 92 of paper 8). • Edens 2008/9 defines self-regulation as the process of actively setting learning goals and engaging in behaviours that lead to their achievement and evaluation (p. 92 of paper 8) • Role-playing deepens students' conceptual understanding by bringing abstract concepts to life (Krain and Shadle 2006), makes classroom knowledge useful outside of the classroom (Tomcho and Foels 2002), and teaches empathy and thinking beyond one's perspective (Krain and Shadle 2006) (pp. 92-93 of paper 8).

Point of Intersection	**Main Points/Contributions Made by the Paper Toward the Theme**	**Relevant Ideas/Literature/Sources**
P1/C	**Theme: Tendency Toward a Conservative Culture of Teaching and Learning** **(EMBEDDED ONLY)** A small number of teachers believed school improvement projects should be eliminated altogether. A bigger number exhibited weak conviction in such projects and failed to perceive them as important. They perceived the projects as a burden and felt frustrated by them. (This signals a negative attitude toward school improvement projects from some teachers in the Bahraini system). There were too many problems and difficulties in implementing one of the school improvement projects. School improvement projects in Bahrain are mandated by the State and thus are also aligned with its adopted reform philosophies. Since these philosophies are in accordance with the requirements of the challenging Information Age, then it follows that all ministry improvement projects are too, and, consequently, aim at yielding nationwide progress in student, teacher, and leaders' 21st Century competencies and skills. For this reason, we find an emphasis in the projects on ICT integration and digital literacy, higher-order thinking skills, creativity and innovation, and independent self-directed learning. The projects are therefore more in line with the new T&L paradigm and we can conclude therefore that any negative attitude toward them is also directed at the new paradigm. This in turn indicates more of a tendency in teachers to adhere to what is familiar or what they're already comfortable with rather than to adopt something new in terms of T&L.	• The literature indicates that traditionally, "teachers' voices have rarely been included in discussions about what changes are needed in education or how to implement initiatives" (Hargreaves and Evans 1997; Hargreaves and Shirley 2011) • Hargreaves, A. and Evans, R.E. (1997). *Beyond Educational Reform: Bringing Teachers Back In*. Buckingham: Open University Press. • Hargreaves, A. and Shirley, D. (2011). *The Far Side of Educational Reform*. Ottawa: Canadian Teachers' Federation. • B.J. Mandernach, "Thinking critically about critical thinking: Integrating online tools to promote critical thinking," Insight: A Collection of Faculty Scholarship, vol. 1, 2006, pp. 41-50.

	By the school improvement projects being mandated by the State without much (if any) input from the teachers, whose role in improvement processes is of crucial importance, this could have led to weak commitment to school improvement implementation and, as a result, preference to stick to a conservative culture of T&L rather than embarking on something new. For school improvement implementation to succeed, teacher collaboration and shared responsibility is a must. However, a pressing need emerging from this study is the need for teachers' collaboration with colleagues and avoidance of a work culture of isolation. This indicates that teacher collaboration is still not very strong in the cultures of the schools of Bahrain. Therefore, teachers stuck in old practices because the new paradigm insists on collaboration among teachers through professional learning communities (PLCs) and communities of practice.	
P2/C	**(EMBEDDED ONLY)** BTC aims at employing international best practices of education, e.g. e-portfolio assessment. However, at BTC, the significance of the e-portfolio as a self-assessment and self-directed learning tool was never sufficiently valued or realized. An important BTC action was taken to ensure that all instructors without exception implement e-portfolio assessment. Despite this, however, and despite training provided for all since the development of the IEM, the data indicate improper comprehension of the model on the part of some instructors (p.91 of paper 2). Some faculty don't see how the e-portfolio tool stands out as a technology tool in comparison to other similar tools and this	• No evidence is found in the literature that "widespread use of e-portfolios occurs beyond the users' college years," mainly because "the purpose of the e-portfolio is poorly understood" (Jenson and Truer p.51) • A study by McNeill and Cram (2011) indicated a challenge with respect to academics' and students' perceptions about the ease of use and the effectiveness of the e-portfolio. Namely, a considerably number found the e-portfolio system not too easy to use and they did not see the value of it and, therefore, did not see the need for the effort of learning how to use it. Personal engagement and educational

	could be one of the main reasons why they are not willing to put in time and effort to learn how make the best use of e-portfolios.	effectiveness consequently were not evident.
P3/C	One of the main reasons for the teachers' negative attitude toward ICT is their unwillingness to abandon their existing pedagogies and instructional methods to something less familiar (Hennessy, Ruthven and Brindley 2005). Teachers' resistance to change is one of the challenges to successful ICT Integration (Papaioannou and Charalambous 2011; Bingimlas 2009) Most participants (91.70%) also confirmed enjoying using new tools for instruction and the majority (79.55%) maintained that they do not need more compelling reasons why they should incorporate technology into the classroom. What this indicates therefore is that most participants do not fear what is new and are convinced of the benefits of ICT integration in instruction and thus are not theoretically resistant to change. These findings altogether point to a positive approach in the participants' beliefs about, and preferences towards, technology and computers in education, which is an advantage and a prerequisite for the success of any type of ICT integration into the curriculum. What contributes to the plausibility of this explanation is that by now, and after the introduction of the reforms since 2005, most Bahraini teachers have come to realize that change is inevitable and that there is no point in resisting it anymore; since, moving against the current is not going to get them anywhere. On the contrary, it will just leave them behind, which is not something anyone would desire or aspire for. The recommendation in this context, therefore, is	• Hennessy, S., Ruthven, K., and Brindley, S., (2005). Teacher perspectives on integrating ICT into subject teaching: Commitment, constraints, caution, and change. *Journal of Curriculum Studies, 37*(2), 155-192. • Bingimlas, K.A., (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia Journal of Mathematics, Science & Technology Education, 5*(3), 235-245. • Papaioannou, P. and Charalambous, K., (2011). Principals' attitudes towards ICT and their perceptions about the factors that facilitate or inhibit ICT integration in primary schools of Cyprus. *Journal of Information Technology Education, 10*, 349-369. • There seems to be an inconsistency between the finding in this paper regarding the attitude of the teachers towards using new tools for instruction and what is reported by the assistant principals about the teachers' attitude and use of ICT in paper 6. • This discrepancy may be due to a possible misinterpretation on the part of the assistant principals: what they may have taken as a negative attitude and a resistance

	that policymakers in Bahrain and in parallel contexts need to first try to find ways to improve the conditions of their public schools before requiring more of the teachers. With the School Improvement Initiatives that are already being implemented in the Bahraini public schools, there is some hope that these conditions will only get better.	to change and to ICT integration from the side of the teachers may not exactly be that. Instead, it may just be a lack of sufficient opportunities to try out ICT integration because of several well-known conditions existing in most, if not all, of the Bahraini public schools. • There is a reference made in this paper to the need for teachers' training on page 68, where it is mentioned that there is a need in some schools to improve the technology training of their teachers in ways that would help them use technology to prepare and create instructional materials and to teach and evaluate their students through technology.
P4/C	When it comes to the new curricula that require less traditional teaching and assessment methods, teachers tend to just focus on covering the content of the lesson and doing a few practice exercises with their students that they are comfortable with. They dare not venture in unfamiliar territory and risk struggling with more challenges (p. 889). Social presence does not only refer to the participation of students but also to the engagement of the instructor, whose role is to design authentic tasks that anchor learning activities within a learning context, facilitate activities, provide feedback and scaffold learning, enhance "community" forming, strengthen the sense of belongingness, build confidence, and stimulate active participation (Beckem and Watkins 2012; Kop 2011; Mandernach 2006).	• Findings of this study show that not all teachers received sufficient training on the new curricula that require less-traditional teaching and assessment methods.

P5/C	Paper 5 makes the point that "Bahraini public schools have been primarily fashioned in accordance with the British educational system and their method of teaching is mainly teacher-centred and one of direct instruction" (p. 2). The assistant principals (research participants) reported that the majority of teachers tends to be fixed on more traditional modes of direct instruction and teaching (pp.12 and 13). So, when it comes to technology integration, they don't always implement what they learn from their PD training, but rather stick to their old ways of doing things. (This is similar to what we found in papers 3 and 6). In terms of the assistant principals themselves, the study indicated that there was a shift away from their traditional perception of themselves as being the individuals solely responsible for, and in charge of, leading and managing the required changes and improvements in their schools and more towards the direction of sharing responsibility, the planning, and the learning in the process of change (p.14). One of the results of ELP modules studies in this paper was that the assistant principals (research participants) started providing training for their teachers on engaged learning through ICT integration, to convince those who are still reluctant to move away from more traditional forms of instruction of its advantages (p. 15). The research participants also started spreading a culture of change within their schools, which helps teachers replace traditional methods of instruction with newly introduced ones (p. 16).	• A point of relevance here is the important role by played by the school leadership in encouraging the adoption of innovative teaching and learning strategies on the part of the school teachers.
P6/C	As regards to the teachers' attitude towards, and preparation for, implementing	• Hennessy et al. (2005) found that teachers are usually reluctant to

	technology integration in their classrooms, the majority of the assistant principals reported that most teachers integrate ICT only when it is imposed on them and that they are reluctant to change. With respect to what the assistant principals consider as the most common problems or challenges facing ICT integration in their schools, what they mentioned was very much consistent with the results of other research studies, mainly the presence of old and traditional teachers who refuse to work with technology.	abandon their existing pedagogies and teaching methods (p. 3 of paper 6). • According to researchers, internationally, the reluctance of teachers and principals to adopt and use technology goes back to their computer anxiety, lack of perceived usefulness of ICT in education, and lack of perceived ease of use of ICT tools (Totolo 2011). (p. 3 of paper 6). • Papaioannou and Charalambous (2011) explain that resistance to change is one of the barriers to successful technology integration in schools (p. 4 of paper 6).
P7/C	In the Bahraini schools, students receive direct instruction in a traditional education system, which tends to focus mainly on rote learning and memorization instead of on active engagement, critical thinking, application, and discovery-learning. (p. 134 of paper 7). It is precisely this type of education that the current national education reform project in Bahrain is trying to abolish through a number of initiatives, among them the establishment of the BTC, which has as one of its main goals the introduction of instructional methodologies that go beyond the traditional delivery of content and that encourage instead the establishment of educational contexts that are conducive to active student-centred learning (p. 134 of paper 7)	• Problem-based learning is a form of active learning as opposed to direct methods of instruction.
P8/C	In the Bahraini schools, students receive direct instruction in a traditional education system (p. 91 of paper 8).	Research has shown that educational reforms (like the one in Bahrain) are very often met with a great deal of resistance (Hughes 2001; Rassekh, 2001; and Wiseman and Alromi 2002).

Point of Intersection	Main Points/Contributions Made by the Paper Toward the Theme	Relevant Ideas/Literature/Sources
P1/D		
P2/D	**Theme: Emphasis on Student-Driven Learning** BTC practices contribute to equipping teachers and leaders with the skills to become self-directed learners. One such practice is e-portfolio assessment. The researcher developed a college-wide integrated e-portfolio model (IEM) to improve e-portfolio implementation (which is learner-driven) by both students and faculty. One action related to the IEM that was implemented was the training of a group of enthusiastic students to act as mentors for their peers, which has helped in raising awareness and creating a more positive culture surrounding e-portfolios within the college. (I.e. student-led or student-driven).	• Among the defining characteristics of e-portfolios as identified by Paul Treuer in 1996 is that they be owned and managed by the learners themselves. (Jenson and Treuer 2014)
P3/D	Successful integration involves three main components, which are: (1) teachers and students learning how to use ICT, (2) teaching using ICT, and (3) students learning through ICT (Abdul Razzak 2013). Without the implementation of all of these three components, ICT integration would not be appropriate, which may result in negative by-products (Flanagan and Jacobsen 2003). The necessary component of student learning through ICT is what is mainly relevant to this theme of 'student-driven learning', because this component is a form of student-driven learning. In the study of P3, the ICT implementation of teachers seems to at least be missing the crucial component of students learning	• Abdul Razzak, N. (2013). The effectiveness of a university-based professional development program in developing Bahraini school leaders' management and leadership competencies of implementing effective school-wide professional development and ICT integration. Professional Development in Education. • Flanagan, L., and Jacobsen, M., (2003). Technology leadership for the twenty-first century principal. *Journal of Educational Administration, 41*(2), 124-142.

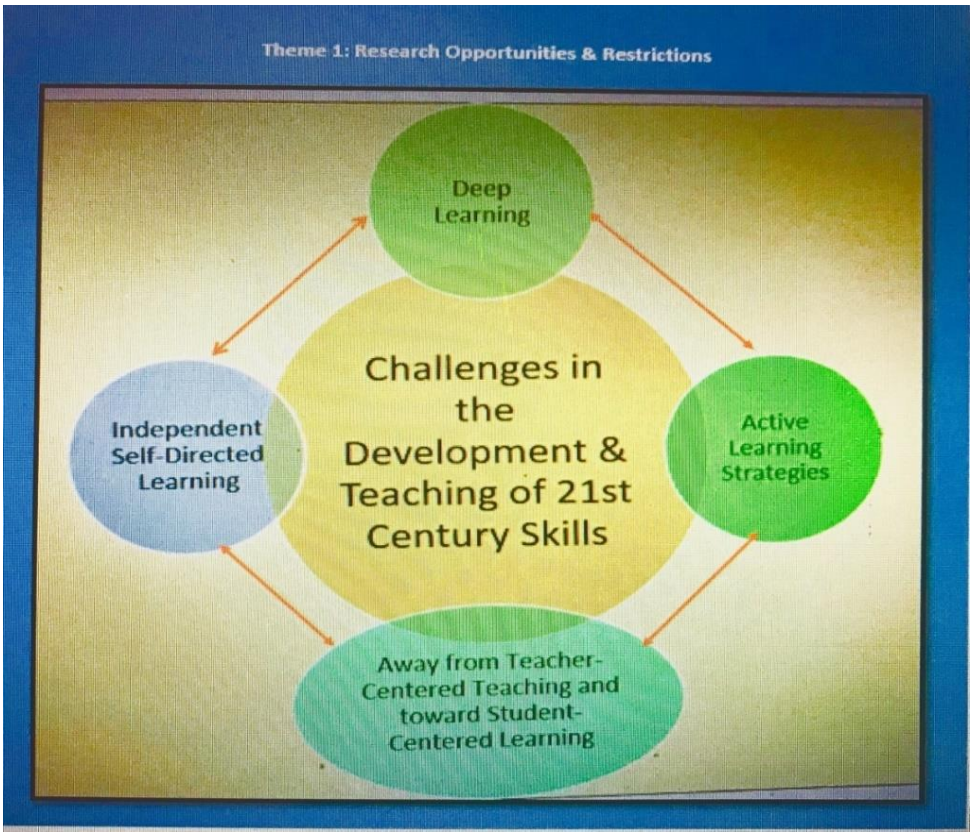
	through ICT. (Therefore, student-driven learning through ICT is missing). Similarly, the results of the study in both phases indicated a consistency between the AP's perceptions, on the one hand, and the teachers' responses, on the other, with respect to the teachers' incomplete understanding and application of the concept and process of ICT integration. This consistency serves as a strong argument for the necessity of restructuring ICT-related PD programs and plans in Bahraini public schools and in similar educational contexts internationally, in such a way that incorporates training that focuses on developing teachers' technological and pedagogical skills and that raises awareness about, and provides practice on, the three main components involved in ICT integration, which are: (1) teachers and students learning how to use ICT, (2) teaching using ICT, and (3) students learning through ICT.	
P4/D	The conceptual framework of paper 4 is related to the theme of self-driven (independent) learning. The link is found in the following sentence taken from the conceptual framework section of the paper: "Digital and online tools that supplement traditional face-to-face activities and are based on constructivist or student-centred approaches, can provide students with opportunities for individualized, self-paced and in-depth interactions with course material through means that suit their preferred learning style (Macknight 2000; Murchu and Muirhead 2005)." (p.884)	• In-depth interactions here is linked to the sub-theme of deep learning • A related idea here is that of active learning as promoting deep learning and reinforcing understanding and, thus, improving student outcomes (John Bigg's 1987).

P5/D	The Educational Leadership Programme (ELP) of the BTC includes a number of individual and group projects and school visits, which work in an engaged learning paradigm, since participants are responsible, strategic, collaborative, and energized through them (p. 3). This implies that the learning is student-driven (independent).	Jones et al. (1994) explains that in an engaged learning paradigm, students are responsible, strategic, collaborative, and energized.
P6/D	The majority of the AP seemed to have an incomplete understanding of the accurate definition of the concept of ICT integration, since their understanding lacked the crucial element of *students learning through ICT*- which is a form of engaged learning and which is highly recommended and stressed on because of being one of the central aims of the introduction of ICT integration in education. The paper focuses on King Hamad's Schools of the Future. The main aim of this project was to present an opportunity for interactive student-centred learning through ICT integration in almost every curricular area (p. 4). (So really the project by focusing on active learning was also intended to promote independent learning)	There is a link in this paper to the need for raising awareness of teachers about the accurate definition of ICT integration (as including *learning through ICT*) and training them on ways of its proper implementation. (p. 7). One of the findings of paper 6 is that there is a need for better technological and pedagogical training of the Assistant principals and also a need for the professional development of teachers when it comes to ICT integration. (pp. 8 & 9 of paper 6)
P7/D	Students coming into BTC preferred sticking to notes handed down to them by their instructor and usually refrained from doing the required readings assigned to them (p. 134 of paper 7). This indicates that they were originally incapable of, or uncomfortable with, independent learning approaches. The conceptual framework of this study involved the theoretical outlook of valuing active learning strategies in education (p.136 of paper 7). (Active learning enables/enhances independent learning). PBL implementation lead to more active and independent learning on the part of the students, since students got to experience	Holen (2000) has shown that PBL facilitates the acquisition and organization of knowledge as well as the acquisition of several other generic desirable attributes such as communication skills, teamwork, problem-solving skills, self-directed learning, sharing information, appreciation of other person's point of view and identification of strengths and weaknesses. (p. 141 of paper 7) Brears, MacIntyre and O'Sullivan (2008) have demonstrated that complexity thinking, meta-cognition, intrinsic motivation, self-directed

	how to be responsible for their own learning (pp. 139 & 140 of paper 7).	learning, self-reflection, and collaborative skills are all operationalized within the context of PBL- all of which are skills that are essential in meeting the social and educational needs of a 21st Century classroom (p. 142).
P8/D	Role-playing is a form of active learning. Active learning contrasts sharply with direct instruction in that active learning gives students a chance to be independent in their learning by sharing and using information and thus making it their own and building students' self-confidence (Shaw 2004) (p. 92 of paper 8). The conceptual framework of this study involved the theoretical outlook of valuing active learning strategies in education (p.93 of paper 8). (Active learning enables/enhances independent learning). The purpose of this study is to encourage active learning among students (p. 93 of paper 8). And by the end of this study, this purpose was fulfilled (p.98 of paper 8).	According to Shaw (2004), active learning gives students a chance to be independent in their learning by sharing and using information and thus making it their own and building students' self-confidence (p. 92 of paper 8). A related idea here is that of the need to learn as much as possible about the school cultures in Bahrain, in order to help BTC better prepare teacher candidates for the challenges they may face when trying to implement active learning techniques of the new educational paradigm (p.100 of paper 8).

APPENDIX F

Diagram Demonstrating Connections Between Themes and Subthemes



*The blue background represents the cross-cutting theme of *Research Opportunities and Restrictions*, which is present either directly or indirectly in all the publications and is linked to all the themes. With some themes, there are gaps in the research on Bahrain; whilst, with others, the research circles around them as interventions to issues or challenges under investigation.

*Theme 2, which focuses on the *Development and Teaching of 21st Century Skills*, is a central theme related to all the other themes and subthemes, which themselves also have overlapping relationships with each other. The green themes in the diagram (*Deep Learning* and *Active Learning Strategies*) are subthemes, where one of them (deep learning) represents a target aimed for in many of the publications and the second (active learning strategies) represents the means/tools to achieve it. The main link here is that the development of 21st Century skills both requires and involves active learning strategies and also enhances deep learning.

* Active learning strategies in return require or involve a *distancing from conservative teacher-centred strategies and a move toward student-centred approaches* (Theme 3), which is sometimes faced with resistance.

*Student-centred approaches enhance *independent self-directed or self-driven learning* (Theme 4), which both involves and enhances 21st Century skills and thus enhances deep learning.

APPENDIX G
Table 6: Publications in Which Researcher is Cited

This table below displays how the researcher's publications included in this commentary have contributed to knowledge and scholarship in the field of education. Each row of the table includes one of the researcher's publications that has been cited in the literature, with details of the research work in which it is cited, namely: title of the work; its year of publication; author; country; type (e.g. journal article, book, chapter, conference proceedings); and analysis in terms of how this work benefited from the researcher's cited publication. If the work in which the researcher is cited is a journal article, the journal's impact factor based on the SJR rankings (Scimago Journal Rankings) for the last two year (i.e. 2017 and 2018) is also mentioned. Of course, this table is not all-inclusive in terms of the works in which the researcher's publications are cited. Only a sample of such works is presented here based on ease of access and convenience. As for the order of the researcher's publications, they are listed chronologically in descending order (newest to oldest).

Researcher's Publication	Cited in:	Year	Author/s	Country	Publication Type	Analysis
2016a (Teachers' Experiences with School Improvement Projects)	Effects of Teaching Methods on Achievement of English Language Learners *(PhD Dissertation)* Walden University	2018	Kathy Short	USA	PhD Dissertation	The researcher's 2016a publication is cited in the literature review section of this dissertation (p.41). The purpose of the citation is to support the idea that for school improvement to be successful, teacher's buy-in is a necessity, meaning that teachers must be convinced that the change is validated.
	Understanding the Overall Experience of the School Improvement	2019	Russell Tony Jones	USA	PhD Dissertation	The researcher's 2016a publication is cited in several places of this dissertation (pp. 2, 7, 78, and 82), namely in the introduction, literature

	Specialist in the State of Arkansas *(PhD Dissertation)* Arkansas Tech University					review, and conclusions sections. The publication is cited to highlight the importance of the role played by those directly involved in a school improvement project, namely teachers, and their belief in it, as was stressed on in the researcher's publication (2016a). It is also cited to confirm how necessary the school leader's support is for the success of the improvement project as, without it, the effectiveness of the teachers directly involved in it would be limited.
	Factors Affecting Trainee Teachers' Intention to Use Technology: A Structural Equation Modelling Approach Journal (Source Title): Education and Information Technologies Impact factor: 2.0	2019	Fuad Eksail & Ernest Afari	Bahrain & Australia	Journal Article	The researcher's 2016a publication was cited in the introduction section of this research paper. The purpose of the citation was to help describe the context of research of this paper, which is the Kingdom of Bahrain with its Economic Vision 2030 and the Ministry of Education's (MOE) new programmes that can help improve schools and education in ways that lead

						to the achievement of Vision 2030.
2016b (Strategies for Effective Faculty Involvement in Online Activities)	Online Interaction in Social Learning Environment Towards Critical Thinking Skill: A Framework Journal (Source Title): Journal of Technology and Science Education Impact factor: 0.69	2019	Wan Nur Hussin , Jamalludin Harun, & Nurbiha A. Shukor	Malaysia	Journal Article	The researcher's 2016b publication was cited in the introduction section of this research paper (pp. 4 & 5). It was cited to highlight several points among them the necessity of students' 'social presence' in online learning environments for their active involvement in learning. This is in addition to the point that interaction in an online environment does not necessarily guarantee that critical thinking be promoted or catered to in such distinct social environments; as, what is additionally needed for enhancement of critical thinking is the careful design of lessons and tasks that require the utilization of the efficient asynchronous tools and technologies (e.g. threaded messages) available in the online systems, with clear instructions and close monitoring and feedback from the instructors.

	Social Network Analysis in Education – From Online Environments to Classrooms Journal (Source Title): Ammattikasvatuksen aikakauskirja (*Vocational Education Journal*) Impact factor: Not found	2017	Antti Knutas ja Jari Porras	Finland	Journal Article	The researcher's 2016b publication was cited in the introduction section of this research paper (p.25). The purpose of the citation was to introduce the idea that one of the useful alternatives to traditional classroom lecturing is the utilization of the various learning tools provided through web platforms, especially those that involve students' collaboration in online environments, such as social networks.
	A Study on Deep Learning and Its Enlightenment on China's Foreign Language Learning Conference Proceedings (Source Title): Advances in Social Science, Education and Humanities Research (ASSEHR)	2018	Wang Honglin	China	Conference Paper/ Proceedings	The researcher's 2016b publication was cited in the theoretical framework section of this conference paper (p.158). It was cited mainly to describe the researcher's belief that students can use online learning platforms such as Moodle and Blackboard to engage in reflection, analysis, and critical thinking, which is helpful to improve their deep learning ability, so as this belief can

						serve as a building block of the conference paper's theoretical framework.
	Problem Solving Competence Developed Through a Virtual Learning Environment in a European Context Conference Proceedings (Source Title): International Scientific Conference eLearning and Software for Education	2017	Marino Marchisio Et al.	Italy	Conference Paper/ Proceedings	The researcher's 2016b publication was cited in a section focusing on problem-solving in this conference paper (p.456). The purpose of the citation was to support the argument that virtual learning environments may be suitable settings for collaborative problem-solving, by referring to the researcher's point in (2016b) that participation in online collaborative activities and discussions can promote critical thinking.
	Empowering Deep Thinking to Support Critical Thinking in Teaching and Learning Conference Proceedings (Source Title):	2016	Hisham Al-Mubaid et al.	USA	Conference Paper/ Proceedings	The researcher's 2016b publication was cited in the discussion and conclusion section of this conference paper (p.74). The citation referred in particular to the researcher's point in 2016b that critical thinking and analysis lead to deep learning, and so was used to confirm the high significance

	2016 ACM SIGMIS Conference					of critical thinking in education and as a competency in the 21st Century.
	Exploring Female Perceptions of Metacognitive Development in Online Learning *(Ed.D. Dissertation)* Concordia University	2019	Heather Richards	USA	Ed.D. Dissertation	The researcher's 2016b publication was cited many times in this dissertation and in three different sections: the introduction (pp. 2 & 10); the literature review and conceptual framework section (pp. 12, 20, 37, 38, 56, 57, 61, 63, & 64); and in the discussion and conclusion section (pp. 131, 133, 150, & 155). The publication was cited in the introduction to support the idea that metacognition enhances students' academic performance and promotes their cognitive and personal development. In the literature review and conceptual framework, the publication was cited to support the link between student engagement or active involvement and deep learning, in addition to supporting the link between

						faculty involvement in online learning environments and the development of students' higher-order thinking skills and deep learning. The researcher's explanation of 'faculty involvement' as the practice of offering feedback, scaffolding learning, enhancing the formation of online community, generating participation, and organizing activities is referred to. Finally in the discussion and conclusion section, the publication is cited to support the conclusion that the power of complicated factors such as isolation and distance in an online community, which can threaten a student's sense of belongingness and motivation to learn, can be suppressed when faculty increase their involvement with online students and provide a context for discovery-learning, active engagement and application, as clearly argued for by the

						researcher in her publication (2016b).
	College Student Engagement in Online Learning *(PhD Dissertation)* New Mexico State University	2019	Gaspard Mucundanyi	USA	PhD Dissertation	The researcher's 2016b publication was cited in the discussion section of this dissertation (p.91). The purpose of the citation was to support the study's finding that students learn more when the instructors are a part of the learning. This finding was supported through the researcher's point that online instructors who participate in discussion boards encourage students to post more and to share their learning experiences, which promotes their critical thinking and deepens their learning.
	Massive Open Online Course Completion Journeys: A Descriptive Case Study of Self-Efficacy and Self-Determination of Adult Learners	2018	Charlotte Russell Cox	USA	PhD Dissertation	The researcher's 2016b publication was cited in the literature review section of this dissertation (p.45). The purpose of the citation was to demonstrate that the scholarly literature of which the researcher's publication is a part supports the idea

	(PhD Dissertation) North Carolina State University					that instructor involvement in online strategies (e.g. virtual discussion boards, weekly reflections through for example blogs) is useful for promoting student engagement, course completion, and improved learning outcomes.
	Predictors of K-12 Teachers' Instructional Strategies with ICTs Journal (Source Title): Technology, Knowledge, and Learning Impact factor: 1.67	2018	Cheeraporn Sangkawetai Et. al	Thailand, USA, & Canada	Journal Article	The researcher's 2016b publication was cited in several sections of this research paper, such as the introduction, conceptual framework, and discussion and conclusions section. The publication was cited in the introduction section as an example of research focusing on deep learning with ICT instruction. Whereas, in the conceptual framework, it was cited to support the belief that ICT can support higher levels of learning. Finally, in the discussion and conclusions section, it was cited to support the study's finding that in classes where teachers focus more on performance, such as the ICT-based ones, and where

						teachers encourage effort from the students themselves, they are able to induce students to develop deep understanding of concepts and to discover things independently on their own.
	Effective Design in Human and Machine Learning: A Cognitive Perspective Book (Source Title): Human and Machine Learning (Publisher: Springer)	2018	Robert Zheng & Kevin Greenberg	Australia	Book Chapter	The researcher's 2016b publication was cited in a section that distinguishes between shallow and deep learning (p.58), and the purpose of the citation was to make use of the particular distinction of these two types of learning that is made by the researcher in the publication (2016b).
	Student-Centred Collaborative Classrooms and Critical Thinking Skills *(Master's Thesis)* Northwestern College	2018	Becky Leonard	USA	Master's Thesis	The researcher's 2016b publication was cited several times in the literature review section of this research paper (pp.14, 15, & 16). The purpose of the citations was to utilize information from the researcher's publication that helps explain critical thinking and how it can be impeded within learning environments that rely more

						on direct instruction. The citations also made use of important examples provided in the publication in relation to how teachers can promote students' critical thinking, including: teachers playing the role of facilitators of knowledge; creating safe, collaborative environments where it is acceptable to make mistakes; setting specific guidelines about expected behaviours and participation; utilizing intellectual techniques like skilled questioning, coaching, re-directing and focusing; and requiring their students to apply the concepts learned in their lessons to new and unfamiliar situations.
2015a An Evaluation of an Integrated E-Portfolio Model	An exploration of Bahrain Polytechnic stakeholder experiences of the use of e-portfolios	2017	McGirr, O. & AlRayash,N.	Bahrain	Conference Paper/ Proceedings	The citation of the 2015a publication here concerned one of its main findings, basically that e-portfolio implementation enhances students' organizationa1 and communication skills, which is a finding that was

	Conference Proceedings (Source Title): Bahrain Polytechnic E-Learnit 2017 Conference: E-Learning Excellence in Higher Education					replicated in the conference paper.
2014 In-service Teachers' Attitudes Toward Technology Integration	Enhancing the Principal's Leadership Role in The Usage of Information And Communication Technology At School *(PhD Dissertation)* University of the Free State	2015	Molaodi David Tshelane	South Africa	PhD Dissertation	The researcher's 2014 publication was cited in the literature review section of this dissertation (p.29) as well as in the discussion section (pp. 174 and 176). However, in both sections, it was cited incorrectly. This is because in the literature review (p.29), the researcher was cited as mentioning something about remote places in South Africa suffering from digital exclusion, which is something that the researcher never referred to in her publication nor anywhere else. Whereas, in the discussion (p.174), it was mentioned that the researcher had suggested in the publication that anyone "can

						initiate the establishment of dedicated ICT-orientated personnel in the school" when she never did. The only time that the publication was cited correctly, but only partially, was when the dissertation mentioned some of the difficulties that school principals have with educational technology. Even then, however, there were some examples of difficulties attributed to the researcher which she had not mentioned in her publication.
	An Investigation of e-Government Adoption in Bahrain and Evaluate the key Determining Factors for Strategic Advantage *(PhD Dissertation)* London South Bank University	2018	Ali Kamali	UK	PhD Dissertation	The researcher's 2015 publication was cited in the contextual background section of this research paper (pp.28 and 30). The purpose of the citation was to explain the several objectives of Bahrain's Economic Vision 2030, and the role of modern technologies in its realization and in the establishment of an information-based society with a knowledge-based economy in the Kingdom of Bahrain.

2013a Effectiveness of a University-Based Professional Development Programme	Headteacher Change Leadership Competency: a study in Malaysian Primary Schools Journal (Source Title): Professional Development in Education Impact Factor: 1.78	2018	Mei Kin Tai & Omar Abdul Kareem	Malaysia	Journal Article	The researcher's 2013a publication was cited in the literature review section of this research paper (p.3). The purpose of the citation was to support the idea that for professional development programmes of school principals to be of high quality, one of the characteristics they should have is that they be continuous and focus on specific skills. Additionally, they should be complemented with professional networks that provide the school leaders with opportunities to share practices and discuss ideas and discussing their ideas, which helps develop their professional capacities.
	A Change Laboratory Professional Development Intervention to Motivate University Teachers to Identify and Overcome	2018	Willy Castro Guzmán	Costa Rica	Journal Article	The researcher's 2013a publication was cited in the literature review section of this research paper (p.71). It was cited as an example of research focused on a professional development (PD) intervention oriented

	Barriers to the Integration of ICT Journal (Source Title): Outlines – Critical Practice Studies Impact Factor: Not Found					towards the school leaders, to compare it with the main point of focus of the study, which is PD intervention targeting teachers.
	Becoming Teacher-Researchers: Teachers' Reflections on Collaborative Professional Development Journal (Source Title) Educational Research Impact Factor: 1.54	2017	Sally B. Gutierez & Heui-Baik Kim	South Korea	Journal Article	The researcher's 2013a publication was cited in the introduction section of this research paper (p.445). It was cited as an example of research in recent years that has emphasised the importance of continuous and job-embedded professional development in enhancing teachers' knowledge, to create a positive impact on students' learning. This supported the paper's aim, which is to encourage teachers to empower themselves through the participation in classroom-based research.

	Enhancing the Principal's Leadership Role in The Usage of Information and Communication Technology at School *(PhD Dissertation)* University of the Free State	2015	Molaodi David Tshelane	South Africa	PhD Dissertation	The researcher's 2013a publication was cited in the discussion section of this research paper (p.127). The purpose of the citation was to argue against one of the study's findings in relation to lack of teamwork and coordination when it came to integrating ICT in instruction. The dissertation referred to the researcher's point made in the publication that all those involved in ICT integration should be well-informed and knowledgeable about it, should believe in it, and support each other in the process under the guidance of a visionary technology leader.
	Teacher-related factors in assimilation of technological change in schools: The case of an Arab school Journal (Source Title): International Journal of Educational Management	2017	Khalid Arar, Ruth Abramovitz	Occupied Territories	Journal Article	The researcher's 2013a publication was cited in several sections of this paper, namely in the introduction (p.766), theoretical framework and literature review part (pp.768-770), and in the discussion and conclusions section (p.776). The publication was cited in the Introduction as an

	Impact Factor: 1.529					example of research on ICT integration in classroom instruction being done in a Middle Eastern country that is undergoing educational reform, to meet 21st century demands. This example was important for highlighting parallels between it and the research context of the paper, where the benefits of introducing ICT in education as an innovative teaching and learning strategy was being recognized. As for the theoretical framework and literature review part of the paper, the publication was cited in it to make use of the researcher's definition of digital literacy as explicitly expressed in the publication (2013a), and also to adopt it as part of the paper's theoretical framework. This is in addition to adopting the point that there is a correlation between teachers' attitudes and how they use computers, and the effectiveness of ICT integration in schools. The citations here also made use

						of important examples provided in the publication in relation some of the main barriers to technological change in schools, such as: lack of teachers' confidence and their computer-related anxiety; lack of teachers' competence and lack of resources; lack of time to prepare technology-based lessons, usually because of a demanding national curriculum and/or a heavy teaching load; frequent technical problems; and teachers' resistance to change. Finally, in the discussion and conclusion section, the publication is cited to support one of the main findings of the study, which is that careful planning of the change process and the contribution of the school's management team ensures effective ICT integration in schools on the part of the teachers.

2013 b Challenges Facing School Leadership in Promoting ICT Integration in Instruction	Factors Affecting Trainee Teachers' Intention to Use Technology: A Structural Equation Modelling Approach Journal (Source Title): Education and Information Technologies Impact factor: 2.0	2019	Fuad Eksail & Ernest Afari	Bahrain & Australia	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper. It was cited to help describe the context of research of this paper, which is the Kingdom of Bahrain with its Economic Vision 2030 and the related reforms in many of its sectors, and the recognition of, and the dependence on, the integration of ICT in almost every aspect of life.
	An Investigation of e-Government Adoption in Bahrain and Evaluate the Key Determining Factors for Strategic Advantage *(PhD Dissertation)* London South Bank University	2018	Ali Kamali	UK	PhD Dissertation	The researcher's 2013b publication was cited in the contextual background section of this research paper (pp.28 and 30). The purpose of the citation was to highlight the role of modern technologies in the realization of the objectives of Bahrain's Economic Vision 2030 and in the establishment of an information-based society with a knowledge-based economy in the Kingdom.

	Enhancing the Principal's Leadership Role in the Usage of Information and Communication Technology at School *(PhD Dissertation)* University of the Free State	2015	Molaodi David Tshelane	South Africa	PhD Dissertation	The researcher's 2013b publication was cited in the introduction (p.1) and recommendations (p.208) sections of this dissertation. In the introduction, it was cited as an example of research attesting the significant role played by the school leadership in guiding, leading, and supporting change related to the use of ICT in instruction. Whereas, in the recommendations section, the publication is cited to support one of the recommendations made by the study, basically that the principal takes a leadership role in ICT integration and involves other stakeholders in planning strategically for it, developing related operational and action plans, and systematically monitoring its implementation.
	Enhancing Modern ICT in Saudi Arabian Public Schools. (*Master's Thesis*)	2017	Alaa Almani	Saudi Arabia	Master's Thesis	The researcher's 2013b publication was cited in the introduction and literature review sections of this thesis. One purpose behind the

	University of Windsor					citations in the introduction was to support the idea that ICT usage is starting earlier from the school years. Whereas, in the literature review, the citation is used to show the researcher's main findings with respect to the main barriers to ICT integration in some schools in Bahrain (e.g. a general lack of technical skills, poor Internet speed, and inadequate Training).
	Instructional Technology Integration: Understanding Senior High School Business Studies Teachers' Concerns Journal (Source Title): American Journal of Social Sciences and Humanities Impact Factor: Not found	2019	Edmond Kwesi Agormedah	Ghana	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.486). The purpose of the citation was to present the idea that instructional technology offers both teachers and students learning tools and resources that go beyond the classroom.

	The Status of Applying Electronic Management in the Functions of Administrative Processes Among the Jordanian Schools Principals in the Capital Governorate of Amman, and the Ways of Developing Them Journal (Source Title): IUG Journal of Educational and Psychology Sciences Impact Factor: Not Found	2017	Eman Abdulrahman	Jordan	Journal Article	The researcher's 2013b publication was cited in the literature review section of this Arabic research paper (p.7). It was cited as an example of research on school principals' challenges with ICT integration in schools.
	The research on educational leadership and management in the Arab world since the 1990s: A systematic review Journal (Source Title): Review of Education Impact Factor: Not Found	2017	Izhar Oplatkaa and Khalid Arar	Occupied Territories	Journal Article	The researcher's 2013b publication was cited in the literature review section of this research paper (p.294). Since this article was a systematic review of research publications on educational leadership in the Arab World, the publication was cited in it. In the citation, a synopsis of the publication's main findings

						with respect to the types of support provided by the school leaders to teachers implementing ICT integration was presented.
	The Role of Transformative Leadership, ICT-Infrastructure and Learning Climate in Teachers' Use of Digital Learning Materials During Their Classes Journal (Source Title): British Journal of Educational Technology Impact Factor: 3.595	2016	Marjan Vermeulen et al.	Netherlands & Belguim	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.1429). The purpose of the citation was to support the idea that school leaders' support of ICT Integration should involve regular follow-up mechanisms, such as monthly meetings for exchanging ICT-relevant ideas and experiences; regular classroom observations to provide feedback on ICT implementations; and continuous updating and maintenance of ICT infrastructure.
	Technology Integration in EFL Classrooms: A study of Qatari Independent Schools	2016	Youmen Chabaan & Maha Elilli-Cherif	Qatar	Journal Article	The researcher's 2013b publication was cited in the literature review section of this research paper (p.2437). It was cited as an example of research highlighting the

	Journal (Source Title): Education and Information Technologies Impact Factor: 2.010					importance of the support, guidance, and encouragement of the school leadership as a strong predictor of teachers' technology use.
	Employing a Descriptive Model to Assess E-Learning Readiness of Palestinian Public Secondary Schools *(Master's Thesis)* Al-Najah National University	2016	Rami Issa	West Bank, Palestine	Master's Thesis	The researcher's 2013b publication was cited in the discussion section of this research paper (p.114). The purpose of the citation was to support one of the findings of the thesis in relation to the main barriers to implementation of ICT integration in schools, namely the lack of teachers' and leaders' awareness of such type of integration.
	Measuring E-learning Readiness: The Case of Palestinian Public Secondary Schools Journal (Source Title): International Journal of Technology Enhanced Learning Impact Factor: 1.3	2017	Rami Issa & Ayham Jarron	West Bank, Palestine	Journal Article	The researcher's 2013b publication was cited in the literature review section of this research paper (p.324). The purpose of the citation was to support other research findings about e-readiness in developing countries, which had indicated that in such contexts, teachers were moderately ready for e-

						learning and that they and the school leaders still needed to be acculturated into the e-learning paradigm and needed more support and the eradication of conditions that act as main obstacles to the implementation of e-learning in their schools.
	Disrupting the Digital Norm in the New Digital Divide: Toward a Conceptual and Empirical Framework of Technology Leadership for Social Justice Through Multilevel Latent Class Analysis *(PhD Dissertation)* Colombia University	2019	Kenneth Edward Graves	USA	PhD Dissertation	The researcher's 2013b publication was cited in the literature review section of this research paper (pp. 207 & 212). The purpose of the citation was to support the idea that school principals in developing countries, among them Bahrain, face similar challenges with obtaining and maintaining technology resources in their schools. The publication was also cited as an example showing that despite this, assistant principals often help their principals to manage technology resources and allocate technology to classrooms.

	ICT Integration in the Classroom, Barriers and Technological Self-Efficacy Among Teachers of Cluster North, City Schools Division of Tacurong: Basis for ICT Professional Development Program	2018	Ester M. Eullaran	Philippines	Funded Research Project Report	The researcher's 2013b publication was cited in the literature review section of this research paper (p.41). It was cited to make use of the researcher's definition of digital literacy as explicitly expressed in the publication (2013b).
	ICT Use in Mathematics Lessons and The Mathematics Achievement of Secondary School Students By International Comparison: Which Role Do School Level Factors Play Journal (Source Title): Education and Information Technologies Impact Factor: 2.010	2016	Birgit Eickelmann Et al.	Germany	Journal Article	The researcher's 2013b publication was cited in the literature review section of this research paper (p.1531). The purpose of the citation was to highlight the important point played by the school principal in supporting teachers' professional development, which is also relevant and important to the integration of ICT in everyday teaching.
	Lebanese Public-School Principals' Attitudes, Level of	2018	Suzanne El Takach,	Lebanon	Conference Paper/ Proceedings	The researcher's 2013b publication was cited in the introduction section of this

	ICT Use, and Leadership Style Conference Proceedings (Source Title): ICEMST 2018: International Conference on Education in Mathematics, Science and Technology		Zalpha Ayoubi, & Ibrahim Kibbi			research paper (p. 304). It was cited as an example of research conducted in the Arab World on conditions, attitudes, and leadership style relevant to ICT integration in schools.
	On the Issues of Digital Competence in Educational Contexts – A Review of Literature Journal (Source Title): Education and Information Technologies Impact Factor: 2.010	2018	Fanny Pattersson	Sweden	Journal Article	The researcher's 2013b publication was cited in the results section of this research paper (p.1012). The purpose of the citation was to support one of the paper's findings in relation to school culture. The finding indicates that a supportive school culture is one that enhances digital competence within the educational context, which is what is emphasized in the researcher's publication through its insistence on teachers and school leaders' ICT-related professional development.

	School Leaders and the Implementation of Education Management Information System (Emis) in the Bahamas: A Case Study of Six Principals *(DPhil Thesis)* University of Sussex	2015	John Alexander Cash	UK	DPhil Thesis	The researcher's 2013b publication was cited in the literature review section of this research paper (p.69). The purpose of the citation was to present the different areas associated with the school principal's technology leadership, which include vision, attitude, training, infrastructure and commitment, as explained by the researcher in the publication (2013b).
	School Level Characteristics and Students' CIL in Europe – A Latent Class Analysis Approach Journal (Source Title): Computers & Education Impact Factor: 7.84	2018	Julia Gerick	Germany	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.161). The purpose of the citation was to present the idea that school leaders can facilitate ICT integration for teachers by creating the right conditions for them.
	School Technology Leadership in a Spanish Secondary School: The TEI	2017	María-Jesús Gallego-Arrufat,	Spain	Journal Article	The researcher's 2013b publication was cited in the introduction and the theoretical framework

	Model Journal (Source Title): Improving Schools Impact Factor: 1.189		Elba Gutiérrez-Santiuste, & Rafael Luis Campaña-Jiménez			sections of this research paper (pp.248-250). The purpose of the citation was to highlight the important role played by school leaders in integrating technology in education. It was also cited to emphasize the point that leaders need to stay up-to-date with the latest technologies, spread a culture of innovation in their schools, develop clear ICT integration plans, and collaboration and support from expert ICT specialists. They also need to have a positive attitude toward ICT integration in schools.
	Secondary School Teachers' Concerns About ICT Integration: Perspectives from a Developing Part of the Globe Journal (Source Title): EURASIA Journal of Mathematics, Science	2018	Nazir Ahmed Jogezai et al.	Malaysia & Pakistan	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.1). It was cited to emphasize the point that ICT integration in education is crucial for deep learning.

	and Technology Education Impact Factor: 1.211					
	Leaders´ Perception of ICT Integration in Private Schools: An Exploratory Study from Dubai (UAE) Journal (Source Title): Social Science Research Network Impact Factor: Not Found	2019a	Laila Mohebi	United Arab Emirates	Journal Article	The researcher's 2013b publication was cited in the discussion section of this research paper (p.28). The purpose of the citation was to support the paper's finding that the leadership style of the school principal is of paramount importance for effective ICT integration, the spreading of an innovation-oriented school culture, and the improvement of student learning outcomes in general.
	Towards a General Framework for ICT and E-Learning Educational Policy in the United Arab Emirates Journal (Source Title): Social Science Research Network Impact Factor: Not Found	2019b	Laila Mohebi	United Arab Emirates	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.2). The purpose of the citation was to emphasize the importance of ICT in education and to highlight some of the benefits gained through it, as explained in the publication (2013b).

	Technology Leadership or Technology Somnambulism? Exploring the Discourse of Integration Amongst Information and Communication Technology Coordinators Journal (Source Title): Irish Educational Studies Impact Factor: 0.6	2015	Adrian McDonagh & Oliver McGarr	Ireland	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.56). It was cited as an example of research that recognizes the importance of ICT leadership within the school system.
	The Relationship between Technology Leadership Roles and Profiles of School Principals and Technology Integration in Primary School Classrooms Journal (Source Title): Journal of Educational Sciences Research Impact Factor: Not Found	2015	Mustafa SAMANCIOĞLU et al.	Turkey	Journal Article	The researcher's 2013b publication was cited in the introduction section of this research paper (p.80), to give an example of research that has found that school principals support teachers in various ways in terms of technology integration, but what is needed is a mutual and solid understanding of the accurate definition of technology integration and its components.

2012 a Problem-Based Learning in the Educational Psychology Classroom	Improving EFL Students' Speaking Proficiency and Motivation: A Hybrid Problem-based Learning Approach Journal (Source Title): Theory and Practice in Language Studies Impact Factor: 0.000	2018	Mohamed Kassem	Egypt	Journal Article	The researcher's 2012a publication was cited in the literature review section of this research paper (p.850). The citation presented a synopsis of the publication and highlighted the publication's findings that indicated a high student satisfaction rate with respect to PBL engagement, as well as an improvement in their learning outcomes.
	Student's Perception of Their Teacher Teaching Style's Journal (Source Title): International Journal of Sciences: Basic and Applied Research Impact Factor: 0.31	2017	Intan Kurniatia & Edy Surya	Indonesia	Journal Article	The researcher's 2012a publication was cited in the introduction section of this research paper (p.92). It was cited as an example of research that demonstrates that student-centred learning models (e.g. those involving PBL strategies) can be more effective than teacher-centred learning models.
	Ask Not Only 'What Can PBL Do for Psychology?' But 'What Can Psychology Do for PBL?' A Review of the Relevance of	2016	Sally Wiggins et al.	Sweden	Journal Article	The researcher's 2012a publication was cited in the literature review section of this research paper (p.142). It was cited as an example of research on PBL implementation in

	Problem-Based Learning for Psychology Teaching and Research Journal (Source Title): Psychology Learning & Teaching Impact Factor: 0.698					educational psychology, to prove the point that PBL can be used in a broad range of psychology specializations or areas.
	The Development of Performance-Based Model Authentic Assessment on Archival Subject Conference Proceedings (Source Title): The First International Research Conference on Economics and Business	2018	Dyan Pratiwi et al.	Indonesia	Conference Paper/ Proceedings	The researcher's 2012a publication was cited in the discussion section of this research paper (p.160). The purpose of the citation was to support the idea that PBL engagement contributes to the development of critical learning skills, as was indicated through the findings of the researcher's publication. This is in addition to contributing to the enhancement of teamwork, communication, information processing, and active engagement.
	Interdisciplinary Professional Education:	2013	Monica Nandan and	USA	Journal Article	The researcher's 2012a publication was cited in the discussion section of this research paper (p.826). The

	Training College Students for Collaborative Social Change Journal (Source Title): Education and Training Impact Factor: 1.873		Manuel London			purpose of the citation was to support the idea that PBL engages students in active learning of concepts, application of theories and practices acquired in the classroom, and working with issues experientially.
	Problem Based Learning in Islamic Education in The Formal Curriculum: A Case Study of Secondary Girls' Education in the Kingdom of Bahrain *(Doctoral Thesis)* University of Huddersfield	2016	Amal Alzayed	Bahrain	Doctoral Thesis	The researcher's 2012a publication was cited in several sections of this doctoral thesis, namely in the introduction (p.14), the literature review (pp. 49, 63, and 74), and the discussion (p.194 and 220). In the introduction, the publication was cited for comparative purposes; as, while the research conducted by the doctoral student focused on PBL in Islamic Education secondary school students in Bahrain, the researcher's publication focused on higher education students in a psychology classroom.

						In the literature review, the publication was cited to describe the standard model of PBL or the classic way of applying PBL in the classroom. It was also cited as an example of research demonstrating that PBL can be applied at different educational levels where teaching thinking skills and problem-solving aim at enhancing students' performance and outcomes. In the literature review section, the publication was cited as research that supports the idea that student-centred learning can help learners think critically, apply knowledge to real life, and achieve deep learning. However, it was also cited to argue that PBL is not suitable for all individual learning needs, by referring to the research's finding of a student who was not engaged in PBL due to motivational difficulties which rendered him as disinterested in any type of learning.

						In the discussion section of the thesis, the publication was cited as an example of research that demonstrates that PBL leads to more independent learning on the part of the students but within the cooperation of a whole team. What this means is that each of them works on the formation of information and they cooperate together to put it together and construct a solution as a team.
	The Study of Adopting Problem Based Learning in Normal Scale Class Course Design Conference Proceedings (Source Title): International Conferences on Educational Technologies 2014 and Sustainability, Technology and Education 2014	2014	Chia-ling Hsu	Taiwan	Conference Paper/ Proceedings	The researcher's 2012a publication was cited in the literature review section of this paper (p.5). It was cited as an example in the scholarly literature of research that focused on the effects of PBL implementation in the classroom instead of focusing on other aspects emphasized by other research, such as student assessment or faculty preparation to deliver PBL.

2011 Role-Playing in the Classroom	Characteristics, Motivations, and Challenges of Women Entrepreneurs in Oman Al-Dhahira Region Journal (Source Title): Journal of Middle East Women's Studies Impact Factor: 0.388	2014	Shweta Belwal, Rakesh Belwal, & Fatema Al Saidi	Oman	Journal Article	The researcher's 2011 publication was cited in the introduction section of this research paper (p.136). The purpose of the citation was to shed light on the behaviours of some women in the Gulf Cooperative Council (GCC) when it comes to working and having a career. The authors of the article referred to the researcher's point in the publication (2011) that some GCC women tend to prefer starting up businesses from home due to having highly conservative families, and that although there are no rules against women having a career, still working in a mixed-gender environment or even outside of the home is sometimes prohibited (Razzak 2011). They referred to this point to prepare the grounds for introducing their paper's aim, which attempted to identify the characteristics, motivators, and hindrances affecting women entrepreneurs in a region in Oman as a GCC country.

Appendix H

Table 11: Publications Included in Commentary

The table below describes the publications included in this commentary and highlights the research methodology adopted in each of them. Justifications for their selection, and brief descriptions of the research tools and the participants involved are included. Additionally, explanations are provided on how data were analysed, with suggestions for possible future research. As for the order of the researcher's publications, they are listed chronologically in descending order (newest to oldest).

Article 1:
Abdul Razzak, N. (2016a) 'Teachers' experiences with school improvement projects: the case of Bahraini public schools', *Cogent Education*, DOI: 10.1080/2331186X.2016.1229898.

Description:
This paper investigated the experiences of teachers in Bahraini public schools with respect to school improvement project implementation and what suggestions they have, to make these processes more successful. Teachers were asked to complete a questionnaire of closed and open-ended items and its results were analysed. In addition, feedback sheets filled by Ministry of Education (MoE) supervisors while observing the classroom teaching of some of their in-service teachers who were implementing aspects of a particular school improvement project related to Higher-Order Thinking Skills (HOTS), which they had recently received training on, were analysed. Upon analysis, the results of the feedback sheets pointed only to problems in teachers' implementations related to difficulties in selection and planning of HOTS' activities. Collectively, the data analysis of both the questionnaire and the feedback sheets yielded useful results, which can help enlighten policy-makers in Bahrain regarding the way forward with school improvement.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible
Journal article	Mixed-methods approach	Objectives were: To explore school teachers' perceptions, experiences, feelings and suggestions in relation to school improvement	*A questionnaire (*including closed-ended and open-ended items)* was used to explore school teachers' school improvement-related perceptions, feelings, experiences and suggestions	*Closed-ended items were analysed (1) quantitatively through the use of descriptive statistics and (2) qualitatively through interpretations indicated by the identified distributions and organized into 8	Investigate school leaders' experiences with school improvement projects in Bahrain, to determine what forms of support they may need and

		projects, in general, and to investigate their practices with respect to HOTs implementation, in particular, and the challenges they face in the process	*Feedback sheets completed by MoE evaluators of in-service teachers' implementation of a particular component of a school improvement project, which had to do with the infusion of HOTS in instruction, were analysed; to shed light on teachers' related practices, the aspects they were succeeding at, and the things they were having difficulty in	main themes *Open-ended items were analysed qualitatively through general inductive analysis * Feedback sheets were subjected to qualitative inductive analysis	from whom and, therefore, get a more holistic picture on school improvement implementation from more than one group of stakeholders

Article 2:

Abdul Razzak, N. (2016b), 'Strategies for effective faculty involvement in online activities aimed at promoting critical thinking and deep learning', *Education and Information Technologies*, 21(4), pp. 881-89. DOI: 10.1007/s10639-014-9359-z.

*Article was published first only on 25 September 2014

Description:

This paper explored senior teachers' (heads of departments) experiences and perceptions in relation to the possible factors existing in pre-university education in Bahrain, that may have been contributing to students' poor performance in terms of critical thinking, analysis, problem-solving, and deep learning in college. An analysis of these experiences and perceptions pointed to existing teaching methods in the form of direct instruction as a possible factor among other things. In response, this paper concluded with the recommendation of utilizing specific strategies to remedy this situation in college, primarily strategies in the form of online activities that promote critical thinking and deep learning and in which faculty involvement is high.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible

	Journal article	Qualitative method of inquiry	Objective was: To explore senior teachers' perceptions of the different curricula in their subject areas, and their classroom observations of the teaching and learning practices of the teachers they supervise, to assess identify possible factors contributing to students' poor critical thinking, problem-solving and deep learning skills	*Discussions of a focus group of 8 experienced Senior Teachers were analysed * Analyses of classroom observations conducted by the same 8 senior teachers of public-school teachers, whom they were supervising, were used to examine the extent to which the teachers were enhancing students' critical thinking and deep learning skills * Curriculum analysis reports of 42 senior teachers in which they analysed and critiqued parts of the curricula they were teaching at different levels of schooling were utilized, to explore how curricula in schools were enhancing critical thinking and deep learning if at all	A general inductive analysis approach yielding themes that were derived from the research objectives and from the various readings of the raw data was implemented	Implement online activities suggested in this study and measure through action research the extent of their effectiveness in promoting skills for success in the 21st Century

Article 3:
Abdul Razzak, N. (2015a) 'An evaluation of an integrated e-portfolio model: the case of Bahrain Teachers' College', *The IEEE 5th International E-Learning Conference: Cognitively Informed Technology, Manama, Bahrain, 18-20 October 2015,* viewed 22 March 2016, DOI 10.1109/ECONF.2015.45.

Description:

This paper highlights some of the challenges of e-portfolio implementation at the Bahrain Teachers' College (BTC); it also investigates, through the analysis of a multiplicity of data sources, the impact of an integrated e-portfolio model (IEM), which was originally introduced at BTC in 2012 in response to the challenges. The results of the IEM's overall evaluation indicated some improvement mainly in the form of stronger awareness and a more accepting culture of e-portfolios; still, however, they also pointed to continuing flaws in e-portfolio implementation, which were briefly explained in the end of the paper and tackled.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible
Conference paper	Qualitative method of inquiry (case study)	Objectives were: To examine how the IEM model impacted e-portfolio implementation at BTC and explore what specific challenges were overcome after 2 years of its implementation and how effective the model was upon evaluation	*Documents: primarily minutes from the E-portfolio Committee meetings, in addition to new e-portfolio related policies, rules, and regulations over two academic years were used as sources of data *Audio-visual materials: a total of 100 samples of fourth-year students' end-of-year e-portfolio PowerPoints, which were selected randomly from the 2 graduating cohorts (around 300 students) over two years were analysed	A general inductive analysis approach yielding themes that were derived from the research objectives and from the various readings of the raw data was implemented	Assess the effectiveness of any measure suggested by the study, after it is implemented that is, and study users' personal perceptions of, and experiences with e-portfolios, in order to try and understand e-portfolio implementation directly from the users' standpoint rather than only from an observer's or investigator's position

			*Assessors' notes: mainly notes from 30 faculty members, who were involved in assessing fourth-year students' end-of-year e-portfolio oral presentations over the academic years 2012-2014, were randomly selected from the notes of a total of 60 faculty members for examination and analysis		

Article 4:

Abdul Razzak, N. (2014), 'In-service teachers' attitudes towards technology integration in the Bahraini classroom', *World Journal of Educational Technology*, 16(1), pp. 60-74.

Description:

This study examined to what extent teachers in the Bahraini public-school system were adopting a positive attitude toward the utilization and integration of ICT in instruction. At the same time, it focused on the support that the teachers were receiving in terms of ICT training and resources and identified the shortcomings that needed to be addressed for successful ICT integration in teaching and learning.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible
Journal article	Mixed-methods approach	Objectives were: To examine AP's perceptions of the status of ICT integration in schools and explore their beliefs about what strategies could	*Group interview with fifteen APs enrolled in the ELP at BTC in the year 2010-2011were conducted * A quantitative research instrument, in the form of a questionnaire was administered, to explore	Qualitative content analysis was used for the analysis of the data collected through the interview; as for the questionnaire, it was analysed both quantitatively (by counting rating	Explore possible policies, procedures, measures, and partnerships needed to reduce the barriers of ICT integration existing in the

			be implemented to improve the conditions of ICT integration	school teachers' attitude towards ICT integration in instruction and the conditions surrounding their implementation in the process; the questionnaire was developed based on survey tools originally housed in the Texas Centre for Educational Technology and the University of North Texas	responses on the predetermined scale) and qualitatively (by developing themes that emerged through applying a general inductive approach of data analysis)	Bahraini schools

Article 5:

Abdul Razzak, N. (2013a), 'The effectiveness of a university-based professional development programme in developing Bahraini school leaders' management and leadership competencies of implementing effective school-wide professional development and ICT integration', *Professional Development in Education*, 39(5), pp. 732-753. DOI:10.1080/19415257.2012.759127.

Description:

In Bahrain, the effectiveness of the one and only university-based programme in the country which was designed for preparing school leaders (the Educational Leadership Programme-ELP) had never been directly measured. There was also little empirical evidence in the literature in general on how effective graduating principals' practice was on the job. This study, thus, attempted to assess the effectiveness of the ELP, to fill a perceived gap in the literature with regard to the context of Bahrain and on school leaders' preparation programmes in general. This was undertaken by assessing the impact of two ELP modules (focusing on management and leadership of teachers' professional development and ICT integration in schools) on school leaders' competencies and performance.

	Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible

	Journal article	Qualitative method of inquiry	Objectives were: To assess how effective the ELP is in developing significant leadership competencies in Bahraini assistant principals (APs) and to assess changes in the APs' perceptions of their role as leaders and managers of teacher PD and ICT integration	* A focus group of 15 experienced APs who took part in a reflective exercise twice: once before the introduction of ELP modules of study and once after their completion, to compare before and after results, was utilized as a source of data * Researcher's notes and observations related to APs' reported implementations in their schools of knowledge and skills they acquired through their ELP courses, which were jotted down during the e-portfolio presentations of 20 ELP participants, were examined and analysed	A general inductive approach from which important patterns and themes emerged was implemented	Investigate further the strengths and weaknesses of the ELP programme, with the aim of arriving at ways to improve the ineffective aspects of the programme and to identify and sustain its more effective ones

Article 6:

Abdul Razzak, N. (2013b) 'Challenges facing school leadership in promoting ICT integration in instruction in the public schools of Bahrain', *Education and Information Technologies,* 20(2), pp.303-318. DOI:10.1007/s10639-013-9283-7.
*Article was published first only online on 27 September 2013.

Description:

This study described, from the point of view of Bahraini assistant principals (APs), the case and conditions of ICT integration in Bahrain's public schools and exposed the main challenges school leaders were facing in the process. It also discussed strategies and presented recommendations that could help school leaders and policymakers in Bahrain and elsewhere respond to such challenges.

Type	Research Design	Purpose of the Research	Research Tools	Data Analysis	Future Research Direction Possible
Journal article	Qualitative method of inquiry	Objectives were: To examine APs' perceptions of the status of ICT integration in schools and explore their beliefs about strategies that could be implemented to improve the conditions of ICT integration in teaching and learning	* A two-hour group interview was conducted with 15 experienced APs, to assess their perceptions of the status of ICT integration * A reflective exercise consisting of journal entries of a whole cohort of ELP participants (54 in total), completed in the end of a module on leading and managing ICT in schools, was carried out to assess what the APs believed to be effective strategies that could be implemented by school leaders to improve the conditions of ICT integration in teaching and learning	A general inductive approach from which important patterns and themes emerged was implemented	Explore actual cases of technology leadership implementations by the APs in their schools and measure their effectiveness in overcoming ICT-related challenges

Article 7:
Abdul Razzak, N. (2012a), 'Problem-based learning in the educational psychology classroom: Bahraini teacher candidates' experience', *International Journal of Teaching and Learning in Higher Education,* 24(2), pp. 134-143.
Description:

This study focused on exploring the effects of, and the students' reactions, to Problem-Based Learning (PBL). It involved observation and monitoring of students' performance, personal reflections and group presentations as the main evaluation instruments. Results indicated a high satisfaction rate with PBL, as well as improved learning outcomes in the educational psychology classroom, with the development of competencies that are more in line with what is needed for solid professional teaching practice. The results also suggested interesting implications related to teacher preparatory colleges and educational reform.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible
Journal article	Qualitative method of inquiry	Objective was: To assess how effective the PBL was as a teaching and learning strategy and how it could become more widely implemented	*An observation rating form, which was inspired by the research done by Kassab *et al.* (2005) in their study of gender-related differences in student-led PBL tutorials as well as the research of Holen (2000), was used to assess students' performance *(skills, behaviors, and interactions)* during the PBL process *Students' reflections about the whole PBL experience were collected and analysed *An analysis of students' group presentations in the end of the PBL assignment was	A general inductive approach from which important patterns and themes emerged, was utilized for data analysis.	Investigate further different PBL implementations, to confirm its promise as an effective teaching-learning experience in different curricular areas and classroom practices

				conducted, to assess the quality of students' analyses, planning, and solutions and to assess the extent to which the students were capable of applying theory to real-life situations		

Article 8:

Abdul Razzak, N. (2011), 'Role-Playing in the classroom: reactions and gender differences of students from a conservative culture', *Journal of Middle East Women's Studies-Yale University*, 7(2), pp. 89-102.

Description:

In this study, role-playing was introduced to encourage more active learning among college students and to assess gender differences in their reactions to a method that requires both open-mindedness and risk-taking. Results indicated a high satisfaction rate and few gender differences in reactions towards role-playing, such as more men than women reporting learning how to interact with others and how to apply classroom knowledge in the real world, while more women than men reporting open-mindedness and risk-taking as improved personal traits. These differences with other ones mainly related to specificities of the country's and schools' cultures yielded important implications for both educational institutions and gender studies.

Type	Research Design	Purpose of the Research	Research/Data Collection Tools	Data Analysis	Future Research Direction Possible
Journal article	Mixed-methods approach	Objective: To explore personal reactions of students toward active learning (AL) techniques (role-playing) and to investigate if any gender differences exist between them	*A questionnaire to identify students' perceptions of the role-playing activity was administered *Students' journal entries were collected and analysed, to identify possible differences between their initial	The questionnaire was analysed both quantitatively (by counting rating responses on the predetermined scale) and qualitatively (by developing themes that emerged through applying a general inductive	Examine the ways men are brought up to perceive the stereotypical differences between them and the women, so as to inform BTC of cultural specificities that may be of relevance to its services, and

				reactions on the first day of the activity and their final reactions on the last day after the end of their skit performances ***A** debriefing session was held with the students, to determine areas of improvement and students' satisfaction with the role-playing technique as an instructional tool	approach of data analysis); whereas, comparative analysis of students' questionnaire responses was undertaken to detect possible gender differences, and qualitative content analysis was used for the analysis of the data collected through the journal entries and the debriefing session	investigate the way in which role-playing has traditionally been used in the Bahraini public schools, as well as what kind of culture exists in these schools with respect to incorporating such AL techniques