Perceptions of Saudi Students to Blended Learning Environments at the University of Bisha, Saudi Arabia

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Abstract
In this study, a survey is conducted to examine learners' perceptions and satisfaction towards blended learning environments designed around the transactional and transformational approaches of learning theories in a blended course in the College of Arts & Sciences, Al-Namas, the University of Bisha, Saudi Arabia. The study aims to evaluate students' perceptions and preferences towards the three components of a blended learning environment: multimedia learning materials, assessment, and interactive activities. A mixed-method of research design is used to collect the data. Quantitative data is collected in the form of 12 Likert items in which 22 Saudi students are asked to evaluate their learning experiences in three categories of the blended learning environment. These categories are multimedia learning materials, assessment, and interactive activities in a blended course on Blackboard, a virtual learning platform used by the University of Bisha to support on-line learning. The researcher's observation is used to decode, and explain the responses of the participants qualitatively. The result reveals that learners prefer illustrated text materials to video, plain text and audio materials, flexible assessments to non-flexible assessment, and embedded communication tools like WhatsApp, blogging, wikis, collaborative activities, and discussion forum.

Keywords: blended learning, instructional design, learning design, learning environment, Saudi students,

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Introduction

The exponential growth of technology and its integration in the regular lives of people have altered the context of learning. Blended learning (BL) is a pedagogical approach that has its origin in the development of educational technology and digital learning. There is no single definition that all scholars can agree upon but the basic notion of BL is to use educational technology in a traditional classroom and combine face to face learning or face to face teaching with on-line learning and on-line teaching. BL is used to deliver digital on-line materials along with traditional print-based materials. BL may include a variety of learning spaces like on-line environment, face to face classroom or a combination of both. It is a flexible approach that enables learners to access digital learning materials, learning activities and even lectures on-line from any place at any time synchronously and asynchronously. Such flexibility in a learning environment is making BL attractive among learning professionals around the world.

Integration of BL in higher education is a recent development in Saudi Arabia. Developed countries had stable education system a century before the Saudi government assumed the resources in the mid-20th century to undertake massive challenges (Almalki, 2011). The Ministry of Higher Education of Saudi Arabia introduced BL as its preferred approach in 2006 to promote professionalism, leadership and quality education in public and private universities (National Centre for E-learning, 2010, cited in Almalki, 2011). Furthermore, it established the National Centre for E-learning and Distance Learning to fulfill the needs of Higher education in the Kingdom (National Centre for E-learning, 2010, cited in Almalki, 2011). Currently, 90% of universities in Saudi Arabia use Blackboard as an e-Learning platform to impart digital education in the university curriculum (Aldiab, Chowdhury, Kootsookos, Alam, & Allhibi 2019) at three levels:

Supportive e-Learning

All classes are taken face-to-face in classrooms and e-learning is used to support the learning process without making it a part of formal assessment.

Blended Learning

Some of the face-to-face classes are replaced by blended learning on Blackboard. The proportion of blending goes between 20% and 75% of the course.

Full e-Learning

All the face-to-face classes are replaced by e-activities on Blackboard except for the final exam and the limited face-to-face sessions decided by the faculty and the teacher.

The learning context in the University of Bisha is a kind of hierarchical individual learning environment where Saudi undergraduates take their assigned/applied courses to gain a bachelor degree. Teachers play the role of content experts and provide learning to the students using textbooks, blackboards, and some digital resources. Supportive level e-Learning is compulsory for all the faculty members to use their courses. Courses in BL is conducted by those faculty members who are trained and have experience in BL. Full on-line learning had been a part of the institution's policy, but it has been widely practiced during COVID-19 pandemic.

This study investigates perceptions of Saudi learners about the design of learning environments built around transactional and transformational view of learning in a blended course. The study extends the contribution of previous studies from the effectiveness of BL to the issues of the design of the learning environment in the Saudi Arabian context. Alzahrani (2017) cited several studies in support of the view that students' achievements are better in blended learning environments than in the traditional learning environment and even better than in the e-learning environment. Alzahrani (2017) also cited some other studies which show that students' satisfaction in blended learning environments is higher than the traditional learning environment. Overall, the studies reveal that Saudi students have positive attitudes towards BL but at the same time, there are some problems and challenges in the implementation of BL in Saudi Arabian educational system. In his Ph.D. thesis, Almalki (2011) has described some of them:

a) The notion of BL is not clearly understood in the Saudi Arabian universities.
b) Faculty members require more skills in pedagogies, and on-line instructional designs to implement BL effectively.
c) Course design lacks functions that can enable students to contribute to the course content and share ideas with their classmates.

Almalki (2011) has shown that instructors have misconceptions about BL. According to him, they require skills in pedagogical and instructional design and competency in creating learner engagement and interaction. In the context of issues raised by Almalki (2011), this research looks into how the Saudi students perceive their learning in a blended learning environment, what components in learner-centered, knowledge-centered, assessment-centered, and community-centered learning environments of the course design are preferred, what are the various notions and properties of BL, and what is the role of new pedagogies in designing a blended learning environment. The study extends the process of investigating students' perceptions from a positive attitude, and effectiveness of BL among the Saudi learners to the level of design of learning environment, organization of contents, and learner engagement in assessment and interaction. The research collects students' responses into three areas: (1) multimedia learning materials, (2) assessment, and (3) on-line interactive activities. The study aims to evaluate students' perceptions and preferences in a blended course that provides exposure in learner-centered, knowledge-centered, assessment-centered, community-centered environments designed through applying transactional and transformational theories of learning to facilitate in developing high order skills, engagement and effective learning. This study will be useful for BL designers, BL instructors, and e-Learning institutions. This study mainly focuses on three questions:

1) What kind of digital learning materials do students prefer in a BL course?
2) What kind of assessments do students find more interesting in a BL course?
3) What kind of activities do students like to use for interaction and collaboration in a BL course?

Literature Review

There are a lot of ambiguities and confusions in defining what BL exactly is. According to Smith and Hill (2019), BL has been in practice in higher education for twenty years but it is still developing and is not yet fully embedded and institutionalized in higher education institutions. Traditionally BL is considered as combining traditional learning with technology or face to face

teaching /learning with on-line teaching and learning. While describing different notions of BL, Smith & Hill (2019) cite Garrison & Vaughan (2008) that BL is 'thoughtful fusion of face-to-face and on-line learning experiences' but this definition is purposefully broad and does not specify the scale and nature of that fusion, making it hard to see the essence of BL, when it can relate to almost anything (Oliver & Trigwell, 2005, cited in Smith & Hill, 2019). In subsequent paragraphs, some definitions of BL are reviewed.

Hartman, Dziuban, & Moskal (2007) define BL as courses that combine face-to-face classroom instruction with on-line learning and reduced classroom contact hours. Chan & Koh (2008) cited Fox, 2002 that BL is "the ability to combine elements of classroom training, live and self-paced e-learning, and advanced supportive learning services in a manner that provides tailored learning (Fox, 2002 cited in Chan & Koh 2008, p. 85). Beatty (2010) described blended learning as … "some combination of textbook, on-line learning, and traditional classroom interaction are all used (p.197)."

Sharma (2010) cited the work of Oliver and Trigwell (2005), which enlisted three kinds of definitions/ perspectives of BL. The first perspective is that BL is "The integrated combination of traditional learning with web-based on-line approaches (p. 456)." Sharma (2010) termed the first definition as a classic definition of BL. According to him, 'Traditional learning' here refers to classroom teaching or 'face-to-face' language lessons. The delivery of the on-line part of the course is usually made through learning technologies using a virtual learning environment such as Blackboard or Moodle and synchronous and asynchronous electronic tools such as chat and bulletin boards respectively (p. 456).

Sharma (2010) cited the second perspective of BL by Oliver and Trigwell (2005) as "the combination of media and tools employed in an e-learning environment" (p.456). According to him, the second definition is as a typical example of a distance learning course, where no face-to-face lessons occur. Communication between the learner and e-tutor may occur through any number of technologies, such as email and internet telephone.

Sharma (2010) cited the third perspective of BL by Oliver and Trigwell (2005) as "the combination of a number of pedagogic approaches, irrespective of the learning technology used" (p. 456).　He elaborated this perspective as a course that combines 'transmission' and 'constructivist' approaches that would fit into the category of blended learning, such as one involving elements of a present-practice-produce methodology as well as task-based learning (p. 456).

Briefly, following six notions of BL can be derived from the above-given definitions:

1. Combining traditional learning/ face to face with technology
2. A fusion of face-to-face and on-line learning experiences
3. Combining face-to-face classroom instruction with on-line learning and reduce classroom contact hours
4. Providing tailored learning
5. Combining textbook, on-line learning, and traditional classroom interaction

6. An integrated combination of traditional learning with web-based on-line approaches
7. Combining media and tools employed in an e-learning environment
8. Combining pedagogic approaches, irrespective of the learning technology used

All the above definitions somehow deal with the use of technology in education but they don't outline how BL extends learning potentialities through the use of technology. Conceptualization of BL by a MOOC "Blended Learning Essentials: Getting Started" by the University of Leeds (2019) provides a comprehensive and practical definition of BL. According to the MOOC, if technology adds value to the teaching-learning process, it will be called BL, and if doesn't add any value, it should not be considered as BL. To illustrate BL in practice, it uses an activity in Week 1 (1.4: What is blended learning?), in which it shows that any routine job in the teaching-learning process that does not add any value to teaching and learning process cannot be called BL. For example, students in the classroom are taking notes on a laptop, or a learner is browsing on-line content just for a better understanding of a concept without their teacher's recommendation. In both examples, the use of technology isn't adding any value to the teaching-learning process. Therefore, it will not be called BL.

According to the MOOC, BL aims to achieve certain pedagogical properties like flexibility, active learning, personalization, learner control, and feedback in the teaching-learning process. For example, learners use virtual simulation to prepare for a practical session using the same equipment or, they use their smartphone to record data in a workplace to present as a graph in the project report. In these examples, the use of technology exhibits value addition of accessibility, interactivity, personalization and flexibility to the learning process. Therefore, it will be called BL (University of Leeds, 2019). The course instructor, Laurillard, defines BL as:

> "Blended learning … is a mix of traditional and digital technologies that are blended together in a way that helps learners learn more productively. They use their time better; they achieve more. Blended learning has value right across the vocation and education sector and to get a sense of where blended learning adds value for both learners and teachers" (University of Leeds, 2019, Week 1).

Professor Laurillard enlisted four properties of digital technologies that BL should exhibit in BL practices:

Storage:
   Digital technologies store information and data very efficiently. Efficient storage means digital versions of videos, animations, and documents can be provided at a far lower cost than their physical equivalent and can be made available for thousands of participants at the same cost.

Access:
   Learners have access wherever and whenever they want it. Learners have a flexible schedule without any restriction of time and location.

Multimedia:

Digital technologies can present material in a variety of different media formats. Learners can watch videos to get a better sense of ways it might work for them. Multimedia with remote access brings digital learning to every classroom, every field trip, and every study room at a time of learner's choosing.

Personalization:

Digital technologies respond to what learners need based on the data they put in. For teaching and learning, technologies are always used for storage-like paper, dictionaries, and libraries - or for easy access- catalogues, indexes, content lists - and for different media - books, videos, maps, diagrams, but personalization is something new that was not possible before. Personalization means enabling learners to make decisions in their digital learning like which activity to do, to interrupt a video, to explore activities for later in the week, to browse what is in the Wiki, and to do the interactive exercises. Thus, learners control a very large amount of content and receive feedback on their decisions.

(The University of Leeds, 2019, Week 1)

The University of Leeds (2019)'s BL approach emphasizes the use of technology to add value to the teaching and learning process and to empower students through providing a learning environment in which students can acquire deep learning. Designing a learning environment and enabling students to acquire deep learning are issues related to new theories of learning like Constructivism, Social Constructivism, Connectivism, Communities of Practices, Activity Theory, Zone of Proximal Development, Scaffolding, Self-Regulated Learning, Collaborative Learning, Problem-Based Learning, and Project-Based Learning. Old theories of learning are based on instructionism which is unable to address the educational challenges in the 21st century. Instructionism refers to those pedagogies in which instructors transmit facts and procedures to students. Learning achievements are determined if students have acquired a large collection of these facts and procedures. In contrast, new theories of learning illustrate how students acquire a deep conceptual understanding of complex concepts and develop the ability to work creatively to generate new ideas, new theories, new products, and new knowledge. They learn how to critically evaluate what they read, how to express clearly both verbally and in writing, and how to understand scientific and mathematical thinking. New theories of learning prepare students to learn integrated and usable knowledge, rather than compartmentalized and pieces of de-contextualized facts. They make learners responsible for their continuing lifelong learning (Sawyer, 2014).

Similarly, this BL approach demands from BL practitioners to apply new theories of learning and design engaging and innovative learning environments. Traditionally, BL courses are designed by applying Instructional Design (ID). Especially, most of the instructional designers use the ADDIE Model to design the courses. Instructional Design (ID) has its roots in educational technologies and system approach to understand and improve methods of instructions (Reigeluth 1983a; 1983b, Seels (1989), Jonassen (1988) cited in Levy (1997). It encompasses a set of interdependent phases including analysis of learners, contexts and goals, design of objectives, strategies and assessment tool, production of instructional materials, and evaluation of learner performance and overall instructional design efforts (Chen, 2008). Like behaviorism, the origin of

instructional design is also rooted in the traditions of military training and has been guided by behaviorist and cognitive theories of learning (Chen, 2008). The focus of the instructional design is often on content (Subject matter) (re) organization rather than the learner, learning, and knowledge application (Sims, 2015).

Under the exponential growth of technology in recent years, the contemporary learning context and the learning process have significantly changed. The contemporary context of learning is technologically rich and increasingly learner-centered, while the learning process is emerging and created through the actions of participants in the learning network (Sun, 2017). BL approach demands from BL practitioners to design a learning environment in which learners can flexibly personalize their learning. They can process multimedia learning materials and can apply high order skills like enquiring, exploring, analyzing, synthesizing and collaboratively constructing their knowledge from the variety of tasks, resources, social configuration or tools to achieve their intended learning outcomes (Mor, Craft, and Maina, 2015). In addition to the objectives of the learners, courses, and institutions, learning theories play a significant role in determining the design of a learning environment. Similar to Instructional Design in which instructionism structures learning resources, learning activities, and assessment in the line of behaviorism and cognitivism, new theories of learning also conceptualize learning environments that can meet the needs of the knowledge economy and develop deep learning. National Research Council (2000) has illustrated the design of learning environments from four perspectives. They are as following:

Learner-Centered Environments

A learner-centered environment is a design that engages students and allows them to construct their meaning by applying their beliefs, understandings, and cultural practices. The instructor facilitates in building the bridge between the subject matter and the student with empathy towards their previous knowledge and ability to build new knowledge.

Knowledge-Centered Environments

A learner-centered environment focuses on learners' ability to construct knowledge while the knowledge-centered environment requires well-organized bodies of knowledge that support planning and strategic thinking. In addition to students' initial preconceptions about the subject matter, it focuses on the kinds of information and activities that help students develop an understanding of disciplines. It fosters an integrated understanding of discipline instead of disconnected understanding. The instructor believes that memorization doesn't contribute to deep leaning. It only promotes surface learning.

Assessment-Centered Environments

An assessment-centered Environment uses formative assessments to provide feedback to learners on their learning so they can revise their learning. The instructor facilitates students in developing self-assessment mechanism, higher-level thinking, and deep understanding, not just assessing facts and procedures. Assessments should match the learning goals.

Community-Centered Environments

A community-centered Environment focuses on connections between the school environment and the broader community, including homes, community centers, after-school programs, and

businesses. This environment is good to extend learning out of class as students spend a relatively small amount of time in school compared to other settings. Activities in homes, community centers, and after-school clubs can have important effects on students' academic achievement.

(National Research Council, 2000)

Blended Learning in Saudi Arabia

While evaluating BL in Saudi Arabia, it is needed to have a comprehensive framework and effective design to provide BL experiences to students. Many research findings confirm that BL in Saudi Arabia has a positive impact on the quality performance of the students and they have a positive attitude towards the use of BL. For instance, Alzahrani (2017) found that blended learning has a positive effect on Saudi students' achievement and they exhibited satisfaction towards BL in their studies. Sajid, Laheji, Abothenain, Salam, AlJayar, and Obeidat (2016) discovered that the application of BL and flipped classroom enhance Saudi students' satisfaction and encourage them for independent learning in addition to increased engagement in classes more than traditional lecture methods. Al-Madani (2015) conducted an experimental study in which he compared the effect of a blended learning approach with the traditional learning approach on fifth-grade students' achievement. He found that the experimental group using the blended approach of learning outperformed the control group using the traditional approach in terms of achievement and the development of verbal creative thinking skills. According to Al Zumor, Al Refaai, Eddin, & Al-Rahman (2013), Saudi students perceive that BL has performed a positive role in broadening their reading opportunities and enriching their English vocabulary. Blackboard that is being used as an e-Learning platform in Saudi Arabia's universities to deliver blended learning has also received a positive perception among Saudi learners and instructors. Ali (2017) affirms that using Blackboard motivates students to work harder and learn better than traditional methods of learning, and students believe that Blackboard is a motivating factor in their learning.

Simultaneously, some studies reveal problems in the implementation of BL in Saudi Arabia. Almalki (2011) in his Ph.D. thesis identified three important issues related with the implementation of BL in Saudi higher education: (1) insufficient definitions of BL, (2) lack of skills in pedagogical and on-line instructional designs and (3) inability of websites' designs and functions in increasing students' contribution in course content and interaction among the students (Almalki, 2011). From Almalki (2011)'s study, it is revealed that faculties in Saudi Arabia are unfamiliar and untrained in using BL as a pedagogical alternative. They are not proficient to use a learning-centered design for engaging students in a digital learning environment. Aldosemani, Shepherd, & Bolliger (2019) enlisted several problems that instructors face in their practices of BL. Based on their findings, they recommended training for faculty members in BL, instructional design, e-learning strategies, content creation, use of learning management system, and student assessment (Aldosemani, Shepherd, & Bolliger,(2019). Lack of training, poor e-Learning infrastructure, overconsumption of time, poor design of activities, lack of communication in blackboard environment, poor quality of content in the course, poor accessibility, and barriers in personalizing learning are some other problems found in the studies of Al Zumor et al. (2013), Ja'ashan (2015), Ali (2017), Elbasuony, M. M. M., Gangadharan, P., Janula R., Shylaja J., & Gaber, F. A. (2018) and Aldiab, A., Chowdhury, H., Kootsookos, A., Alam, F., & Allhibi, H. (2019).

Once in an interview, Steve Jobs, the founder and Chief Executive Officer (CEO) of Apple (technology company)' said, "What's wrong with education cannot be fixed with technology" (Thomas, Reinders & Warschauer, 2012, p. 2). Job's statement means a problem in digital learning can be corrected by applying authentic theories of learning not just by employing state-of-the-art technology. BL practitioners need to realize that the full potential of the technology cannot be materialized by applying an instructional design that looks at learning as an end product. They should apply new theories of learning like constructivism, social constructivism, and connectivism that will enable students to apply high order learning skills in the learning process. They should employ these theories in designing learning environments so they can provide learner engagement and genuine learning experiences to their students. As some learning environments are mentioned above, teachers should explore numerous other ways of designing learning environments and using them in their courses. In this study, learner-centered environments, knowledge-centered environments, assessment-centered environments and community-centered environments are employed to let the students construct their knowledge and achieve their learning outcome themselves.

In this research, Saudi undergraduates are offered BL experiences in multimedia learning materials, assessment and interactive activities. In the knowledge-centered environment, students are provided duly coded multimedia learning materials. In the assessment-centered environment, students are offered flexible and non-flexible, synchronous and asynchronous assessment activities aimed to engage students in the learning process. In the community-centered environment, students were provided with collaborative and interactive involvement through Google docs, WhatsApp communication, discussion, blogs and wikis. Purpose of designing such a learning environment was to provide engaging, interactive and learner-centered learning experiences to Saudi undergraduates. This study is an attempt to record students' perceptions and attitudes towards BL at the level of design and learning environment.

Research Design
Context of the Research
The research was conducted in the department of English in the College of Arts and Sciences at the University of Bisha, Al-Namas in Saudi Arabia in the academic session of 2018-19. 22 Saudi male undergraduates between the age group of 17 to 23 years participated in the study. Participants were enrolled in English 312: Language Learning and Technology, a course in English Bachelor's program. The semester consisted of 16 weeks in which the course had three credit hours a week. Participants took face-to-face classroom two hours a week. The instructor used one hour on-line to conduct a review of weekly learning activities, providing feedback, and on-line lectures. Blackboard was used as an e-Learning platform, while other digital tools and resources like Wikipedia, Google Docs, WhatsApp, and Web resources were integrated. At the end of the semester, the researcher conducted a survey to evaluate their perceptions towards the learning environment in the BL course. The researcher used his observation as a qualitative tool to explain the perceptions and attitudes of the students.

The Procedure of the Study
The research collects quantitative data in the form of a survey of 12 Likert items. In the survey, 22 Saudi students were asked to describe their learning experiences to 12 statements in three

categories of the blended learning environment: multimedia learning materials, assessment, and interactive activities at Blackboard. The researcher used his observation to explain the students' responses qualitatively. In the first category of the survey, students were asked to express their preferences to a variety of digital learning materials. This category represented a Knowledge-Centered Environment in which a variety of digital materials, web resources, and open-learning resources were organized to let the learners access and construct their knowledge. The materials included text materials (MS Word, PDF, and PowerPoint), video materials, audio materials, and illustrated text (a combination of visual and verbal materials). The second category represented an assessment-centered environment. In this category, students were asked to describe their responses to formative tests. There were four kinds of formative tests: non-flexible synchronous tests (tests taken in real-time without referring back to any learning resource), flexible synchronous tests (tests taken in real-time with option to refer back to digital and non-digital learning materials), asynchronous tests (tests taken in different times and places), and task-based tests (tests like video recording and digital albums). Students had multiple attempts to take each test. Category three is for a community-centered environment. In this category, students had opportunities to collaborate their learning and interact with their peers as well as the course instructor through Google docs, on-line discussion boards, blogs, and WhatsApp.

Research Methodology

The study uses a mixed-method design of research to investigate the perceptions of Saudi students who have attended the course. There are 12 statements in which the students are asked to respond. They have a Likert scale survey with 3-scale points: 'Agree,' 'Neither Agree nor Disagree,' and 'Disagree.' They choose the option as per their learning experiences and preferences in the course. It is the most widely used approach to scale the responses in survey research. The researcher chose 3-scale points Likert scale because it is simple for the students to decide if they like or dislike, it minimizes their confusions, and it is easy to measure. Quantitative data of the survey is explained by the qualitative tool of observation. As the researcher is the instructor in the course, he uses his observation to explain and interpret the responses of the learners. At the end of the study, the researcher makes findings and recommendations for other researchers interested in further research in BL in Saudi Arabia.

Data Description

Table 1. *Category 1– Types of learning materials*

Types of learning materials	agree	neither agree nor disagree	disagree
Text materials	77.2% (17)	9.1% (2)	13.6% (3)
Video materials	72.7% (16)	13.6% (3)	13.6% (3)
Audio materials	50% (11)	27.3% (6)	31.8% (8)
Illustrated materials	86.3% (19)	9.1% (2)	4.5% (1)

* Percentage and number of (participants) in the survey

Category one in Table one is related to multimedia learning materials. Text materials consist of MS Word, PDF, and PowerPoint. Video materials cover a variety of videos like personality-driven, content-driven, community-driven, and presentation-driven. Audio materials refer to MP3 files recorded by the teacher or taken from web resources. Illustrated materials are dual coded materials

that combine verbal materials with visuals to make it comprehensible. In the blended course, the researcher used these four kinds of learning materials to deliver course content on Blackboard. In category one, there were four statements aimed to elicit students' responses:

1) On Blackboard, I prefer to access learning content in the form of MS Word, PowerPoint, and PDF.
2) On Blackboard, I prefer watching videos posted in the lecture section.
3) On Blackboard, I love listening to lectures in an audio file.
4) On Blackboard, I like when educational concepts are illustrated with texts and images.

According to the data in table one, illustrated materials are the most preferred learning materials, i.e., 86.3%. The second and the third preferred choices are text materials and video materials, i.e., 77.2% and 72.7% respectively. The least preferred choice is audio materials, i.e., 50%. Audio materials significantly remain the least preferred materials as 31% of students dislike it, and 27.3% of students show neutral responses. Fewer students dislike illustrated materials, text materials and video materials, i.e., 4.5%, 13.6 and 13.6 respectively. Similarly, a small group of students express neutral responses to illustrated materials, text materials, and video materials, i.e., 9.1%, 9.1%, and 13.6%, respectively.

Based on observation of the students' digital practices in the classroom, illustrated materials seem more preferred than video materials or text materials because it is easy to comprehend, precise, and demonstrative than other materials. The observation suggests that learners' accessibility experiences to video materials on Blackboard are less facilitative than videos at YouTube, so students seem preferring image materials over video materials. Text materials are also popular among students. They are conveniently downloadable and printable for non-digital use in self-reading, tests, and examinations. According to Motteram (2018), video materials are found as the most popular among the Indian students, but findings here suggest that illustrated materials are more preferred to video materials. In the context of digital learning in India, video materials are used as digital content at a large scale but little attention is paid on dual coded and illustrated materials. Another reason is video materials at YouTube provide better learning experiences than video-watching experiences at Blackboard. These choices of the learners show that the selection of a learning platform is also a crucial factor in enhancing accessibility and engagement of the learners in learning materials. Audio materials involve listening skills. Listening to audio materials requires deliberate efforts and competence in listening comprehension. Therefore, it seems, the students do not prefer it much.

Table 2. *Category 2- Assessment*

Category 2: Assessment	agree	neither agree nor disagree	disagree
Synchronous tests (Non flexible)	54.5% (12)	13.6% (3)	31.8% (7)
Synchronous tests (Flexible)	100% (22)	0% (0)	0% (0)
Asynchronous tests	90.9% (20)	4.5% (1)	4.5% (1)
Task based tests (Asynchronous)	36.3% (8)	27.3% (6)	36.3% (8)

* Percentage and number of (participants) in the survey

Category two in Table two deals with on-line assessments on Blackboard. There are four kinds of assessments delivered in the course. All four tests are formative assessments with multiple attempts. Learners receive automatic feedback in tests 1-3, and they get manual feedback in test 4. Synchronous Tests (non-flexible) are those tests, which are conducted in e-Learning lab in real-time. Students are asked to complete the test without taking the help of any kind of learning resources. Synchronous Tests (Flexible) are another kind of tests in which learners take the test in e-learning lab in real-time, but they are allowed to complete the tests by referring back to learning materials. Task-based tests are tests where students record videos with language tasks. The main purpose of these tests was to measure learning outcomes, to provide feedback on learning, to develop an ability to use high order skills (analyzing, synthesizing, evaluating, and researching) and involve in the process of knowledge building and knowledge management. In this category, there are four items on which the learners responded:

1. On Blackboard, I prefer to complete the tests in the e-Learning lab in real-time without looking into learning materials or web resources.
2. On Blackboard, I prefer to complete the tests in the e-Learning lab in real-time while consulting questions and their answers from learning materials or web resources.
3. On Blackboard, I prefer to complete the tests in which I get the freedom to take the test out of college without any restriction of time.
4. On Blackboard, I prefer to complete a project or a task given by the teacher.

According to the data in table two, synchronous tests (flexible) are the most preferred kind of assessment. All of the students, i.e., 100% agreed on this form of tests. Based on the researcher's observation, the availability of digital resources in the lab, and flexibility of referring back to learning materials and web resources make the students motivated and reduces anxiety. Second, the students prefer to take the test as a tool to get feedback on how much they have learned and what they further need to learn. This observation is also supported by the second most preferred asynchronous tests, i.e., 90.9%. Differences between synchronous tests (flexible) and asynchronous tests are insignificant as both offer flexibility in referring back to learning resources. The data reveals that synchronous tests (flexible) are preferred to asynchronous tests. It seems that synchronous tests (flexible) are slightly more preferred because it offers the technological facility, instructors' guidance and physical presence of their classmates in the lab while other one lacks devices and instructor's facilitation. Significantly, the least preferred tests are the task-based tests, i.e., 36.3% followed by synchronous tests (non-flexible) 54.5%. Similarly, task-based tests (asynchronous) are the least preferred tests, i.e., 36.3% after synchronous tests (non-flexible), i.e., 31.8%. As far neutrality of the students to different tests is concerned, 13.6% students remained neutral to synchronous tests (non-flexible), none of the students participated in expressing neutrality towards asynchronous tests (non-flexible), 4.5% students remained neutral towards asynchronous tests and 27.3% students remained neutral to task-based tests (asynchronous). Based on the observation, this pattern of preferences confirms that students dislike anxiety in the assessment. Synchronous tests (non-flexible) and task-based tests (asynchronous) share similar features. Synchronous tests (non-flexible) have restriction of time and place along with no flexibility of consulting learning materials while task-based tests require self-regulation, creative involvement and skill performance. Lack of preferences for both tests seems due to being challenging, less flexible, and causing anxiety among the students. Students' responses in table

two support the view that assessment should be flexible in blended learning. Either a test is synchronous or asynchronous, it is less important for the students.

Table 3. *Category 3- Interactive Activities*

Category 3: Interactive activities	agree	neither agree nor disagree	disagree
Collaborative activities (wikis and Google docs)	81.8% (18)	4.5% (1)	13.6% (3)
Discussion forum	81.8% (18)	4.5% (1)	13.6% (3)
Blogging	63.6% (14)	27.3% (6)	9.1% (2)
WhatsApp communication	90.9% (20)	9.1% (2)	0% (0)

* Percentage and number of (participants) in the survey

Category three in Table three deals with the students and teachers as a learning community and evaluates students' responses in the areas of collaborative and interactive activities. Some of these interactive options are inbuilt in Blackboard, for example, wikis, discussion forums, and blogs. Some of these interactive options have been integrated into the course, for example, Google docs, and WhatsApp. In this category, there are four items about which the learners were asked to respond:

1) I enjoy writing activities in the group as you did in Google docs and wikis.
2) In the discussion forum at Blackboard, I like to read threads, contributing my comments, and responding to others' threads. I find that my participation helps me in understanding course content and performing well in the exam.
3) On Blackboard, I like creating blogs, and I find that it helps in my study and exams.
4) The use of WhatsApp in the course kept me informed about the updates in the course. It helped me to communicate with other class fellows and share learning materials.

According to the data in table three, almost all students responded positively towards interactive activities. WhatsApp communication, collaborative activities on Google docs and wikis, and discussion on Blackboard are the most popular interactive activities, i.e., 90.9%, 81.8%, and 81.8%, respectively. The least preferred interactive activity is blogging, i.e., 63.6%. Table three reveals that 27.3% of learners are neutral to the blogging, the highest neutral response compared to WhatsApp communication, i.e., 9.1% while collaborative activities and discussion forums responses are 4.5% and 4.5%, respectively. Table three shows that 13.6% of students perceive collaborative activities and discussion forums negatively, while 9.1% of students do not find blogging as an effective factor in their learning. Significantly, none of the students responded negatively towards the use of WhatsApp for interaction and communication among themselves.

Students' responses in this category show that students prefer an interactive environment in the blended course. They are comfortable using digital tools for interaction. They share their learning resources, collaborate in resolving learning challenges, and inform each other about updates in the course. Based on the observation, the researcher finds students used WhatsApp actively in the course not only for interacting with other students and teachers but also for sharing learning materials, discussing difficult concepts, and issues related to examinations and assignments. They

worked in the WhatsApp group as distributed collective carrying issues of their learning in the course themselves.

The researcher also found that contents in blogging and discussion are plagiarized, but blogging and discussion forums enabled students in researching and paraphrasing their answers for their examinations and assignments. Students also feel that their participation in blogging and discussion forums enabled them to prepare for the exams.

Findings:
In response to the first research question, i.e. the most preferred multimedia learning materials, the result shows that dual coded learning materials (illustration and combination of verbal materials with visual materials) are the most preferred kind of digital learning materials among the learners. Video and plain text materials are followed by dual coded learning materials.

In response to the second research question, i.e. the most interesting assessments, students' perceptions reveal that they want flexible assessment in which they have options to explore learning resources, little restriction of time and places and low anxiety along with the corrective feedback. Synchronous tests (flexible) are preferred to asynchronous tests, synchronous tests (non-flexible), and task-based tests (asynchronous). It simply means students prefer to take the assessment in BL as a scaffold to process learning materials and a tool to reinforce their learning.

In response to the third research question, i.e. the most preferred interaction and collaboration activities, a regular and external digital tool like WhatsApp is more preferred than a formal tool of interaction in the virtual learning platform. They are quite positive to the integration of external digital tools in the blackboard and the course. They like interactive and collaborative activities like Blog, Wikis and discussion but language proficiency seems an obstacle. They turn to plagiarized content from prescribed learning materials and web resources.

Conclusion
The findings of this study confirm that design for the learning environment makes a significant impact on learners' interaction and engagement in BL courses. In Knowledge-Centered Environment, Saudi learners prefer when learning materials are dual coded and combined. Illustrated materials (combined verbal materials with visual materials) top learners' preference followed by videos and plain text materials. In an assessment-centered environment, they prefer flexibility and low anxiety. They want a flexible choice to scaffold assessment with learning resources. They want active participation and interaction using apps that they use in their regular life. The study reveals scope for further research in how flexible and non-flexible synchronous as well asynchronous assessment can be used to add value to teaching and learning process and how dual coded and illustrated materials can distinctly provide better learning opportunities than other kinds of multimedia materials.

Recommendations
Based on students' responses and the researcher' observation, following recommendation can be made for blended learning designers and on-line instructors:

1) Design for BL courses should be the top priority for institutions and BL practitioners.
2) Awareness of instructors in new pedagogies and learning design should be raised.
3) Multiple learning environments should be incorporated into BL courses to make learning more natural and realistic.
4) Integration of digital tools into BL courses ensures enhanced accessibility and engagement of the learners.
5) Learning materials should be more engaging and should represent different learning experiences of diverse group of learners.
6) The assessment process should be flexible and focused on developing higher-order skills instead of memorizing facts and procedures.
7) Formal and non-flexible assessment activities in Blended courses should be reduced.
8) Teachers' awareness should be raised regarding the role of technology in dealing with students as a community and each student as a participant in developing engagement, enhancement, independence, and participation in learning.

Limitations

The study has limited participants (Saudi male undergraduates in the department of English). Blackboard is used as the leading platform for course delivery. Findings of the study may vary in other regional or infrastructure context. The findings of the study may also change if the participants are other than male ones or from any other country than Saudi Arabia.

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