

Task: E-learning frameworks.

Formal research has proposed several e-learning frameworks that provide guidance to e-learning designers. Such frameworks focus on a variety of aspects as it relates e-learning. Find and summarise (using your own words) two such frameworks from the literature. In addition, provide your own assessment of the framework, or of aspects of the framework, by relating it to your own experiences with, or expectations of, e-learning initiatives. **(2 x 10) =20 marks**

In general, this task was poorly answered i.e. not using own words to describe the framework; not providing the reference to the framework; or not providing an own assessment of the frameworks as it relates to own experiences or expectations. Copying and pasting a framework is not an answer – at best it is an exercise in using the copy and paste functions of an editor!

A general comment

Marks are not awarded for simply sourcing and referencing an article. One important reason why we require you to use articles in formulating your answers is to nurture the very important skills of analysing, interpreting, synthesising, formulating and presenting information. From tutorial letter 101: *At postgraduate level, and in this module, it requires students to provide evidence that they are able to think independently, are able to find/use, analyse and interpret a variety of research-based knowledge sources, synthesise such sources and knowledge, formulate convincing answers/arguments, and has good presentation and documentation skills.*

Task: M-learning

For developing countries, M-learning or mobile learning has been touted as the logical solution to education outside the classroom. Making use of a range of formal research publications, provide research evidence which either agree with, or contradict, the statement. That is, you either need to be for it or against it, or undecided. Clearly state your position at the beginning of your answer.

Use the following headings:

1. Access to mobile learning in Africa **5 marks**
2. Opportunities or challenges facing m-learning **5 marks**

Some students did not state their position, and/or did not include research that is specific to Africa/developing countries, as pointed out in the introduction to the task. The second part of the task, opportunities and challenges was also aimed at developing countries. The biggest shortcoming however, was a lack of a range of articles. It would not be a good idea to take a

position on the basis of a single article and research result.

Task: Blended learning

Source a formal research article that reports on an application of blended learning i.e. where it was implemented and evaluated. Summarise the article in your own words, using the following headings:

- | | |
|------------------------------------------|---------|
| 1. The research questions asked | 1 mark |
| 2. The methodology followed in the study | 4 marks |
| 3. The results and conclusion | 5 marks |

Well answered by most, although some students did not make use of a blended learning paper.

Sample answer

1. The research questions asked

- Do students from a low socio-economic status (SES) background make substantial advances on a standardized reading test after participating in a blended learning program?
- Are there differences in achievements on a standardized reading test based on the grade of the student?
- Are there differences in achievements on a standardized reading test for students who are English language students (ELs) compared to those who are not?
- Is there a relationship between progress in a blended learning program and achievements on a standardized reading test?

(Prescott et al., 2017)

2. The methodology followed in the study:

The study was conducted amongst 31 classes comprising of 641 students ranging from kindergarten to grade five in an urban, elementary school over a period of one year. The Group Reading Assessment and Diagnostic Evaluation (GRADE) was used to pre and post test the learners. ELs comprised 18,4% of the sample with 70% of the participants coming from low SES backgrounds. The teachers, over 95% of whom were highly qualified, were asked to utilize a blended learning methodology to reading instruction by integrating digital technology and offline material into their current English language arts curriculum (ELA). The school used Core5 digital technology with other digital technology and offline resources playing a supplemental role. The software included progress monitoring as well

as online activities together with teacher-led lessons requiring paper and pen tasks for independent work. Students used the online components based on the recommended amount of time on a monthly basis. The software dashboard tracked student usage and progress and also recommended paper and pen tasks that students could work on independently once a level had been completed. Semi-structured interviews of educators were carried out to corroborate the usage of online and offline components. Two observers at two time points observed students within the lessons, which occurred in the classroom as well as in the library. At the beginning of the year, students completed an embedded assessment, which placed them at a level consistent with their reading ability. At the end of the year, advances in the online component were measured by subtracting the placement level from the end of year level. To determine if students showed growth, repeated measures analyses of variance (ANOVAs) were conducted. The interaction between pretest/posttest and EL status was tested to determine if the level of growth differed between ELs and non-ELs by running post hoc tests. Multiple regression was used to investigate how well the number of completed levels predicted growth by using the third grade as the comparison grade because of its importance in the development of literacy.

(Prescott et al., 2017)

3. Results and conclusion:

Kindergarten students showed significant growth from pretest to posttest, with similar growth evident in ELs and non-ELs, with the interaction between time point and EL status not significant. The main effect of EL status was significant as students who were ELs scored lower than non-EL students on both the pre as well as posttest. However, EL students showed improvement and closed the gap on their posttest scores. Similarly, grade 1 students showed growth from the pretest to the posttest. EL students were statistically equivalent to non-EL students during the pretest but fell behind their peers at posttest. However, despite differences in growth, both groups had pre and posttest means in the average range. Students in grade 2 also showed significant growth from pre to posttest with similar growths in EL as well as non-EL earners. Grade 3 learners also showed significant growth with non-EL learners performing better than EL learners; indicating that EL and non-EL learners develop at different rates. Learners in grade 4 did not show significant growth from pre to posttest in both EL as well as non-EL learners. EL learners did not perform as well as non-EL learners. Learners in grade 5 also showed significant growth from pre to posttest with similar growth in both EL as well as non-EL learners. EL learners scored lower than non-EL learners on both pre as well as posttests. Overall, learners from kindergarten to grade 2 who met their usage of the online component more consistently than the other grades showed the greatest gains in reading levels. The researcher concludes that a blended learning setting can offer advantages to learners from low-SES backgrounds, offering differentiated education, identifying areas of skill deficiencies and providing targeted instruction to overcome these deficiencies. It is, however, important to take cognizance of the fact that a blended learning program is expected to be effective only if teachers make every attempt to guarantee that learners have sufficient opportunities to utilize the digital modules of the package as suggested. These findings indicate an encouraging opportunity to focus on the vital necessity of enhancing

elementary school reading ability. (Prescott et al., 2017)

Source:

Prescott, J.E., Bundschuh, K., Kazakoff, E.R. & Macaruso, P. 2017. Elementary school – wide implementation of a blended learning program for reading intervention. *The Journal of Educational Research*, 0(0): 1–10.

Task: The pedagogy of e-learning

Pedagogy is the study of how to teach (or even how not to teach). The pedagogy of e-learning concerns the way in which online teaching and learning should be approached (happen). Contrary to belief, it is not simply a matter of turning a traditional face-to-face course into an on-line version.

From formal research, provide at least 5 pedagogical guidelines which can serve as guidelines for designers. **10 marks**

As with task 4, a failure to consult a range of articles was the most common shortcoming.

Sample answer

Fowler (2015) maintains that educational advocates should devise learning experiences that best meet the didactic requirements of the student. Within this context, Dell et al. (2015) identify the three philosophies of presentation; action and expression; and engagement and interaction for effective course design whilst other researchers identify designing for learning communities, creating personal learning environments, activity scheduling and scaffolding designing techniques to enhance the online teaching and learning experience. These design guidelines are presented below:

1. Presentation requires that learners be provided with different methods of obtaining facts and knowledge. Online courses should be learner-centred; which often changes the dynamics of teaching and learning with the learners generally taking responsibility for their individual learning. Educators and students develop a partnership with each other. As a result, courses should be designed with the end in mind, using what Dell et al. (2015, p. 76) refers to as a “backwards design”. The educator should first consider the objectives of the course, what learners should learn in each course, how the class should be structured etc. to plan an outline that will guide the course construction and design. Planning in this manner allows the educator to anticipate, rather than merely reacting to student needs. Such an approach could, for example, incorporate numerous instructional methodologies that can reflect best practices for pedagogics. The main idea is to know what the goals are and to devise alternative techniques of evaluating the attainment of these objectives. Simple and consistent navigation with uncluttered, consistent and organized pages should

be presented (Dell et al., 2015). In addition, online training usually requires some pages that simply present facts or information. These include overview pages to introduce each lesson and list the contents or pages that illustrate concepts similar to online documentation. Keeping text short and precise and illustrating ideas with pictures and diagrams helps to make these overview and concept pages effective (Bhalla, 2014).

2. Action and expression offers learners several methods of demonstrating what they understand (Dell et al., 2015). Discussions are an important tool used by many online instructors. It is therefore vital for teachers to both instill as well as model discussion board decorum. It is important to provide well organized and easily accessed discussion topics well in advance so that learners can keep track of topics (Dell et al., 2015). Additionally, students should be stimulated to provide their own contribution and improvements to the offered content (Grunewald et al., 2013).
3. Engagement and interaction allows a teacher to exploit students' interests, suitably challenge them, and inspire them to study (Dell et al., 2015). Prior research by Häkkinen & Härmäläinen (2012) highlight the social attribute of learning which challenges pedagogical designers to build interactions between learners and their environments. Additionally, Rock et al. (2016) maintain that customary eLearning is often reduced merely to a linkage of fixed hypertext pages which constrain the student to participate in monotonous reading and clicking operations. It is therefore necessary for emerging eLearning tools to enable a distinctive learner-centered encounter, which is both interactive as well as immersive. A significant characteristic of the learning process is collaboration, including the interaction between educators and students, which can serve to motivate learners. Therefore, it is necessary to support different levels of engagement to consider the different motivations of participants as well as to strengthen their social incentives (Grunewald et al., 2013). Additionally, Wang & Chiu (2011) argue that e-learning systems need to provide additional interactive experiences to boost user fulfilment. Research by Wang & Chiu (2011) and Thoms & Eryilmaz (2014) suggests that in order to promote reciprocated collaboration, e-learning systems must consider cognitive, behavioral and social components.
4. Designing for learning communities has now become more widespread resulting in the concept of a pedagogical design to refer to a more indirect method of design. The focus is on establishing supportive conditions for cooperation without meddling in interaction practices. Pedagogical design should be viewed as providing means to sustain team participation and knowledge creation actions rather than offering rigid action plans (Häkkinen & Härmäläinen, 2012). Subsequent research by Grunewald et al. (2013) builds on this concept; advocating that by including certain significant components within the platform, social interchange and cooperation can be facilitated and maintained. There is an inherent danger that students may not achieve constructive collaborative activities like questioning, explaining, elaborating or arguing. The educational design can thus aspire to organize social interactions so that constructive collaboration is more likely. This can be achieved by designing collaborative undertakings that would probably not arise otherwise. Recognizing that there are distinctive means whereby individual students contribute to social practices is crucial when designing pedagogical learning environments. As students are dynamic participants in collaboration, a major role of design is to present them with

the means to assist their combined information creation activities. A central aim in pedagogical design is to provide a succession of connected individual and collaborative stages to enable dialogue to evolve as participants respond to what is said by others and continue to contribute to the ongoing discussion. Within this background, technology could be used to scaffold collaboration and learning by providing prompts or other tools. Common workspaces as well as asynchronous transmission tools can provide context for explanations, knowledge creation and other innovative collaborative undertakings required for learning (Häkkinen & Hämäläinen, 2012).

5. Activity scheduling: Online learning environments employing social software and mobile devices are frequently loosely designed, requiring the learner to be accountable for regulating his or her own learning (Häkkinen & Hämäläinen, 2012). Adaptive scaffolding can be executed in the design by providing prompts to students whenever they shift to a different issue so that their progress can be monitored. The monitoring instrument can itemize goals, listing those that have not been accomplished in the prescribed time. Affording learners a scheduling interface, which lists activities and completion times, is a way of providing an analytic panel that learners can consult to check their progress in attaining their goals.
6. Scaffolding can be included as part of the design to:
 - Offer guidance, interpretation, and clarification concerning the design of each learning scenario.
 - Add metacognitive levels of questioning for each design scenario. Learners will be stimulated to display the rationality of their judgements with the intention of promoting reflective analysis. Angeli et al. (2015) describes the value of inspiring learners to “dialogue with themselves and the material” (p. 3063), to discern personal value and usefulness of information.
 - Prompts and feedback could be designed to aid with the pedagogical design and the creation of new design situations, which could also be an additional method of providing adaptive scaffolding (Angeli et al., 2015).
7. A Personal Learning Environment (PLE) is a background for people, communities, tools and resources to flexibly intermingle. Along with a focus on learner-centredness, the objective of a PLE is to present a customized, individualized and modular solution to incorporate individual and collective educational zones. A PLE is positioned at the intersection of the private and shared aspects of learning. PLEs for learners can contain tools to promote distinct access for the management, creation and exploration of information as well as tools to reinforce communication and collaboration amongst individuals (Häkkinen & Hämäläinen, 2012).

Sources

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Task: Design an e-learning course

This is the focus task of the current assignment. It counts 50 marks, so it needs to be comprehensive. It builds on Task 2(b) in the previous assignment. The main difference here is that you are now selecting and motivating e-learning tools to fit a teaching and learning approach that you will develop from scratch for a module of your choice.

You have been appointed as a lecturer at an Open Distance e-Learning (ODEL) institution. Using the documents and sites available at

- <http://learning.gov.wales/docs/learningwales/publications/140721-planning-learning-tlp-model-en.pdf>
- http://www.unisa.ac.za/static/corporate_web/Content/Colleges/CGS/schools,%20institutes%20&%20research%20chairs/institutes/documents/odl-policy_version5_16Sept08.pdf
- <http://www.opencolleges.edu.au/informed/teacher-resources/resources-for-distance-education/>
- <http://www.fao.org/docrep/015/i2516e/i2516e.pdf>

as background, design and present an ODeL scheme of work, limited to the teaching and learning approach you will follow and the e-learning tools you will use, for a module of your choice. A *work scheme typically maps out how resources, online activities and assessment strategies will be used*

to ensure that the learning aims and objectives of the course are met.

Examples of e-learning tools are, but not limited to, blogs, discussion forums, drop box, FAQs, learning units, meetings, podcasts, Questions @ Answers, self-assessments, wikis etc. These tools are typically contained in a Learning Management System (LMS) which serves as the platform wherein the tools are offered. Try and think further than just what myUnisa offers.

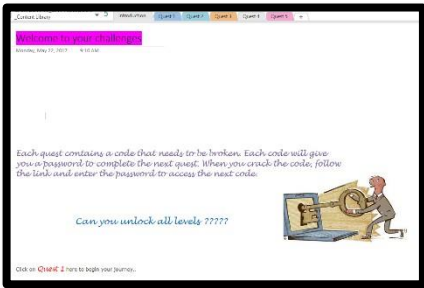

From the formal research literature, motivate your choices throughout. For example, do not just state "A discussion forum will be made available so students can have discussions with fellow students about this section or ask the lecturer questions". Provide motivation from the literature why a forum will be a useful tool for this module i.e. there is proof that the use of a forum is successful, as reported in a study by X and Y.

50 marks

In general, a very disappointing effort by many students. For 50 marks, it needed to be *comprehensive*. Besides not stating and/or adapting the module it is designed for, other shortcomings were: not including references; not using a range of articles to motivate the e-learning tools; and most significantly, not providing a scheme, or when providing one (which sometimes was just copied from the general internet without any further consideration), failing to map online activities and e-learning tools to be used to the scheme presented. That is, there was a clear disconnect between the scheme presented and the tools to be used. Presenting the scheme and discussing the tools separately, without reference to how they fit within the scheme's online activities, resulted in low marks. Finally, many students did not motivate their choice of e-learning tools using the (formal) literature.

Sample answer

N.B. Although there a number of tools that are available, the following discussion isolates and justifies only those tools that are most appropriate for the dissemination and assessment of the chosen topic and content. Tools have been included based on their relevance in the context of that particular topic rather than simply to indicate all available tools.

DATE	SUB-TOPIC	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT	COMMENTS
01/08/2017	Introduction to cryptography	<ul style="list-style-type: none"> What is cryptography? Types of encryption Different types of ciphers. How encryption can be used to protect data. Introduction to modern cryptography, public-key encryption, digital signatures, pseudo-random number generation, and basic protocols and their computational complexity requirements¹ 	<ul style="list-style-type: none"> Students must listen to scene setting podcasts used to introduce the topic and as preparatory material prior to analyzing the case study. Students use the case study provided to research the different types of encryption that are available. Apply cryptography by using different types of ciphers. Discuss how encryption can be used to protect data using the 	<ul style="list-style-type: none"> Podcasts (found under learning resources) Hyperlinks to relevant web pages Case study: Goldwasser, S., S. Micali, and R. L. Rivest. "A Digital Signature Scheme Secure Against Adaptive Chosen-Message Attacks." <i>SIAM Journal on Computing</i> 17, no. 2 (1998): 281-308. Philadelphia, PA: Society for Industrial and Applied Mathematics. Available from the UNISA library, 	<ul style="list-style-type: none"> Self assessment quiz (Kahoot) Gamification activities to encrypt information using the different types of encryption. For example providing different levels, each of which can only be unlocked by decrypting the code provided.  	<ol style="list-style-type: none"> Podcasts have a positive impact on student attitudes and engages and centres student learning, behaviour and performance (Herreid & Schiller, 2013). Collaboration with fellow students, through the dissemination of podcasts, for example, permits feedback and the creation of new perspectives (Forbes & Khoo, 2015). Case study: Herreid and Schiller (2013) indicate that case studies engage students and develop critical thinking skills. In addition, using a case study incorporates active learner-centred learning allowing students to fully grasp the content, which can in turn be used to solve real life problems. Active learner engagement in the learning process is the most effective way to learn and case studies provide a means of attaining student engagement by capturing their interest and engaging them emotionally (Herreid & Schiller, 2013). Gamification: represents the explicit use of competition as a motivational tool which, various scholars for instance De-Marcos et al. (2016) and Buckley & Doyle (2017) agree encourages participation through comparisons with peers and has a positive impact on engagement, participation and learning behaviours. Prior studies by Urh et al., (2015)

¹ Available from: <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-875-cryptography-and-cryptanalysis-spring-2005/index.htm>; [Accessed: 25/07/2017]

			discussion forums set up for this activity.			<p>highlight Increased efficiency, efficacy, enthusiasm and engagement of students as benefits of gamification within the learning process. A basic element of gamification is positive feedback, which raises users' self-esteem and motivation and contributes to individual learning. Studies conducted by Yildirim (2017) confirm that gamification-based teaching practices enhance students' attitudes toward lessons and their achievement. However, De-Marcos et al. (2016) caution that educational undertakings and aims must be carefully aligned with the tool to allow gamified methodologies established on extrinsic reasons to enhance learning accomplishments.</p> <p>4. Quizzes: Quizzes, which serve as a practice and review component, have proven to be an effective learning enhancement strategy in the teaching and learning process (Brown & Mbat, 2015; Cohen & Sasson, 2016). Brown & Mbat (2015) further indicate that arbitrary quizzes may inspire students to learn more, to be constantly engrossed in the material, to feel less test anxiety and possibly score higher on standardized tests. The nature of quiz design, which blends a randomization element with several allowable tries, advances opportunities for students to take accountability for their own studying. Instantaneous responses promotes student reflection of their understanding, forces them to implement additional methods to attain more understanding and to make additional attempts to establish if they have actually developed their understanding (Cohen & Sasson, 2016).</p>
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DATE	SUB-TOPIC	CONTENT	ACTIVITIES	RESOURCES	ASSESSMENT	COMMENTS
13/08/2017	Cryptology and Cryptanalysis	<ul style="list-style-type: none"> What is cryptanalysis and cryptology? Different types of algorithms How are the different types of algorithms implemented Weaknesses in: <ul style="list-style-type: none"> Encryption algorithms Implementation of the algorithm Environment of use of the algorithm 	<ul style="list-style-type: none"> Use different data to perform simulations of how different algorithms work Case study Discussion group topics to be completed 	<ul style="list-style-type: none"> Youtube videos to view simulations Quiz based on video 	<ul style="list-style-type: none"> Quizzes based on video (OfficeMix or Kahoot) Complete assignment posted on Learning Units. Use relevant research articles from the Library. Complete cover page for assignment found on the Wiki. 	<p>1. Discussion groups: Thoms and Eryilmaz (2014) maintain that learning should preferably not be static, but rather a creative process to expose a student's conceptual understandings to his or her peers, to explore different learning perspectives and discover shared understandings. It is suggested that interacting in a discussion group produces a more constructive and noticeable effect on students' learning satisfaction (Thoms & Eryilmaz, 2014). Contributors must be keen to learn from each other within a community of enquiry . For constructive feedback, students should be able to considerably communicate via multimodal means and build on each other's theories (Forbes & Khoo, 2015). Subsequent studies by De-Marcos et al. (2016) concur that educational interaction encourages students' enthusiasm, remembering, involvement, fulfilment, individual creativity and personal interaction, thus expanding the efficacy of communication and enabling divergent views. Online discussion forums permit learners to cultivate online groups and collective support systems for peers to co-create knowledge and share resources. Additionally, these forums allow educators to enable student engagement in the social creation of information. The more students prepare and obtain feedback on their collective problem solving, the more profound is their learning. This accentuates how engagement stems from the students' involvement in learning (like contributing in a discussion or collaborating on</p>

						<p>problem solving), furthers their learning and supports further involvement in course knowledge (Rock et al., 2016). Discussion groups are viewed as an educational area, where students have greater influence, independence and liberty because it is a closed community of students sharing a common purpose (Cheng, 2013). Participation in groups enables learners to isolate and amend misunderstandings easily and swiftly to increase their grasp of the topics being reviewed (Chiong & Jovanovic, 2012).</p> <p>2. Videos: discussed below</p> <p>3. Case Study: discussed above</p> <p>4. Quiz: discussed above</p> <p>5. Wiki: discussed below</p>
04/09/2017	Symmetric encryption algorithms	DES AES RC2 RC4 RC5 RC6	<ul style="list-style-type: none"> Student created podcasts on terminology Refer to the article available at : http://www.scienpress.com/Upload/JCM/Vol%204_1_20.pdf <p>and create a blog on the information that you have read</p>	<ul style="list-style-type: none"> Cryptool (online tool for comparison of algorithms) https://www.cryptool.org/de/cryptool2 Email (discussed with assignments) 	<ul style="list-style-type: none"> Self-test Assignment Create your own symmetric encryption algorithm and explain how it works using a podcast 	<p>1. Student created podcasts: Forbes & Khoo (2015) maintain that podcasting to communicate data to students does not support user creation, cooperation and the exchange of ideas amongst students. Thus, when online students use podcasting to talk and listen to each other, the potential for learning is greater. Concurrent research by Brown and Mbatia (2015) indicate that podcasts enable learners to report on subject areas pertinent to their class. Students are able to conduct objective research on a particular topic, analyze the information found and consolidate and convey this data in a visually pleasing manner. Such activities reinforce enquiry and critical thinking skills, while providing opportunities for students to publish this information in an informal way. Podcasting is a valuable tool for sustaining learner flexibility and control, enthusiasm and commitment and reasoning and learning. Distance students value</p>

			<ul style="list-style-type: none"> • Watch the youtube tutorial on cryptool 2 at: https://www.youtube.com/watch?v=giP7-ruVFEY • Use the Cryptool online software found here: https://www.cryptool.org/de/cryptool2 <p>to run simulations of different encryption algorithms</p>			<p>podcasts because they supplement text-based studying. Constantly reading and writing when studying online can have an isolating effect on students; students need the flexibility of asynchronous access. Learners are inspired by the prospect of verbalizing ideas and recreating, as well as by obtaining comments from listeners. Producing and distributing podcasts can augment contemplation as students reassess and amend their thinking based on the feedback obtained, thus demonstrating its capacity for individual development as well as for supporting diverse learning needs (Forbes & Khoo, 2015). Subsequent research by Asoodar et al. (2017) concurs by indicating that the different formats of podcasts for example, video podcasts and audio podcasts allow students to engage with the subject matter at their own rate thus respecting a diversity of learning styles. Additionally, learners believed that creating podcasts focused their attention on the topics, gave them a heads up on forthcoming chapters (thus enabling them to manage their time efficiently) and allowed for good explanations and examples (Asoodar et al., 2017).</p> <p>2. Blogs: Wang et al. (2016) maintain that effective exchange of ideas is vital for constructing cohesive and effective teams. Scholars concur that blogging helps to enhance student reflection, increase student engagement, improve communication and learning skills, initiate portfolio building and create better synthesis across multiple activities (Thoms & Eryilmaz, 2014; Wang et al., 2016). Additionally, Mbatl & Minnaar (2015) reveal that discussion groups and online blogs could aid to encourage experiential learning in students. The impact of</p>
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						<p>these tools on learning environments, especially when they are modified to enrich the range and complexity of information sources as well as the inter-connectivity between learners and instructors, offers an opportunity for educators to keep students engaged in the learning process (Cheng, 2013). The use of blogs allow learners to experience less information overload and to feel a sense of possession, which decreases the apprehension of participation. In addition, blogs support data archiving which permits learners to compensate for any discussions that were missed. The facility to easily publish and access content on a blog not only increases students' communication skills and learning abilities, but also helps them to contribute to a community of students who actively construct knowledge. Students are able to construct a socially interactive environment guiding them to learn from the ideas of others, share knowledge sources and compare or compete with others' work. Participating in a blog enables students to choose the time, pace, subject matter and structure of their learning. This sense of autonomy positively affects students' enthusiasm (Wang et al., 2016).</p> <p>3. Hypertext links permit students to appreciate relationships amongst ideas and to move beyond the borders of the curriculum (Grunewald et al., 2013). However, a challenge in learning from Internet based material is the sheer amount of information available online that can potentially hinder deep reading (Qayyum & Smith, 2015). For this reason, it is my opinion that courses should be structured and guidance be provided so that students do not feel adrift in the vast</p>
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						<p>amounts of information available. Therefore, providing hyperlinks to relevant articles can structure effective learning.</p> <p>4. Assignments: Students need to know about and be able to access and submit assignments. Systems that automate the submission of assignments are advantageous to students as it saves them time. Hypermedia capable pages allow for immediate circulation of and access to assignments. In addition, having email alerts as well as a calendar allows students to instantly know when an assignment has been posted or when results have been made available. Students and lecturers are easily able to track assignments as well as the progress of the student (Cooke-Plagwitz & Hines, 2001). Accessibility is a key concept in online learning and email provides a bridge to sustain communication and dialogue (Englund et al., 2017). Additionally, email allows for public, private or group consultations as well as enhance the ease with which subject matter can be evaluated and returned (Cooke-Plagwitz & Hines, 2001).</p> <p>5. (Youtube) Videos: videos present an abundant online experience that combines sound, images and text to increase the distribution of information (Cheng, 2013). An advantage of using these videos is that students can access them offline at their leisure (June et al., 2014; Hargis et al., 2014). June et al. (2014) further assert that the use of YouTube videos intensifies learner immersion, critical awareness and expedites deeper learning. Youtube videos demonstrate abstract content, engage learners, and stimulate novel teaching methods. Additionally, these videos motivate student</p>
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						debates, enable the sharing of information and generate a learning society [ELearning videos are discussed further later in this document].
24/09/2017	Asymmetric encryption	RSA	<ul style="list-style-type: none"> Refer to the discussion forum available at: https://crypto.stackexchange.com/questions/292/how-does-asymmetric-encryption-work Using the information discussed, create your own wiki to discuss asymmetric encryption. Each student must now comment on at least two other students' answers. 		<ul style="list-style-type: none"> All students are required to read their peers' post, post questions, and respond to all comments or question left on their wiki. Students are to reflect on their learning by: <ul style="list-style-type: none"> List what you have learnt in this topic List what you have learnt from other students on this topic Reflect on what you have learnt from other students <p>Submit your reflections as an assignment.</p>	<p>1. Wikis: Wikis serve the purpose of group creation tools for carrying out tasks, recording and revising work and as a tool to facilitate peer exchanges. Wikis are flexible social learning tools for the co-construction of knowledge and collaborative learning as well as to promote a multi-level social interaction amongst students as well as between the lecturer and learners (Hew & Cheung, 2010; Namdev, 2012; Goldstein & Peled, 2017). Wikis facilitate the publishing of comments, exchanging of interpretations and views and developing friendships amongst peers. Wikis enable members of a group to build and edit documents as well as for lecturers to announce resources like course outlines and topics. They enable students to directly access, edit and comment on these resources. Students can take on active roles as writers in collaboratively authoring and publishing wiki content (Quek & Wang, 2014). However, prior research by Hewege & Perera (2013) indicates that there is a danger of stagnation in discussions if wikis are not clearly aligned to the curriculum. Wiki based pedagogies enable students to share resources; proffer an avenue for the exchange of ideas, share different perspectives and simplify understandings. Wikis expedite learner-centred learning; thus complementing lecturer's responsibilities as facilitators. They provide a forum for students to engage in brainstorming and making decisions on given subjects, leading to a collaborative creation of a rich repository of resources and building a sense of community</p>

						<p>(Hewege & Perera, 2013). Not only does a wiki activity help students better understand the curriculum, but it also facilitates learning. Students use wikis to share resources and critique peers' work, which encourages student interactions thus helping to improve the quality of their academic work. Providing students with a safe place to publish comments and obtain feedback from peers facilitates collaborative learning. Additionally, by enabling students to exchange ideas with peers, wikis provide a way of gaining confidence, motivation and insights. They are therefore effective tools for supporting student learning in the higher education context and creating student-empowerment. Wiki-supported pedagogy allow instructors to design online activities in which students can select and share learning resources and create their own products. In this way, the learning process is democratized with students' voices being heard and more meaningful learning occurring via participation (Quek & Wang, 2014). Wikis support the expertise of providing significant advice to colleagues. Wiki-based projects develop the creativity of learners; thus contributing to their empowerment and enabling students to take responsibility for their own learning. This contributes to meaningful learning. Having a source of shared course products supports a comprehensive vision of the course matter. The learning process becomes documented and visible, permitting follow-up of the students' progress and the chance of designing successful learning practices. Scholars like Cheng (2013) and Goldstein & Peled (2017) agree that this process shapes participation and creates a space for student-centred interaction</p>
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						and discussion to take place. The lecturers' input and constructive appraisal contributes to students' active learning and the development of critical thinking (Goldstein & Peled, 2017).
14/10/2017	Quantum cryptography	Explain what quantum cryptography is	<ul style="list-style-type: none"> View simulation of Trojan Horse attack Students explore a simulation and then work on the related activity. Use Yammer to discuss the simulations 	<ul style="list-style-type: none"> Simulations Video of quantum cryptography available at: https://www.youtube.com/watch?v=660jBQDORRw Discussion forums Case study: view article here: http://0-iopscience.iop.org.oasis.unisa.ac.za/article/10.1088/1367-2630/16/12/123030?fromSearchPage=true Webinar 	<ul style="list-style-type: none"> Assignment Use Yammer for team based activities on the comparison of the efficiency of each of the algorithms. The posts will count for bonus marks at the end of the semester. 	<p>1. Simulations espouse model-building by decreasing complications, concentrating on essential concepts and rendering the invisible visible. They stimulate involved investigation, sense making and associating several depictions. Simulations comprise of high levels of collaboration and direct response. Through text explanations, simulations are self-contained instructional tools. This approach immediately immerses students; thus allowing a greater focus on conceptual understanding. By using multiple representations to illustrate phenomena, interactive simulations help students to develop visual mental models and encourage them to make connections between different representations. Research indicates that getting students to freely explore a simulation before working on an activity encourages exploration and making sense of phenomena (Kohnle, 2014). This view was also expressed in prior research by (Grunewald et al., 2013) who assert that offering students content-specific visualization tools cultivates a collaborative creation of understanding.</p> <p>2. E-learning videos provide an efficient way of obtaining valuable content. They possess the capability of presenting information in a more collaborative way thus engaging students in the learning process (Arora et al., 2014, p. 219). Videos are efficient online media for facilitating experiential learning (Mbatia & Minnaar, 2015, p. 275). Students can control the rate of their</p>

						<p>learning via interactive videos that provide their own elements of enticement like colours and visuals which enrich the learning process by catering to different learning styles irrespective of whether they are auditory, kinesthetic or visual learners (June et al., 2014). Creating their own videos enables students to restructure and interact with educational content in a way that challenges their world views (Englund et al., 2017).</p> <p>3. Yammer: Pinto (2014) contends that advanced communication abilities is one of the top ten critical skills required of employees. Additionally, research indicates that the success of a team is dependent on the type of processes that members of a team use to communicate with each other. Yammer offers improved opportunities of promoting team-based interactions and online collaboration in an informal, social media enriched context. Pinto (2014) maintains that Yammer, as a networking environment, provides a casual means of communication, which is better for inspiring team interactions and cross-functional collaboration. The use of Yammer within the tertiary education environment can enrich students' education as well as groom them for the contemporary labour force. The note feature as well as the facility to upload files permits group participants to work together from distant sites (Pinto, 2014).</p> <p>4. Webinar: studies indicate that typing text using a chat tool together with audio-visual information like voice inflection and facial expressions allows information to be transferred in a manner that is more supportive of student understanding than if only chat is used. Webinars help to increase a</p>
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