Transitioning Classroom Based Learning to a Distributed Learning (DL) Environment

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ABSTRACT

In developing online content for a DL version of a course, the primary goal is to ensure that the learners taking the DL course can meet the same learning objectives as those taking the face-to-face course, and it is also important that the DL version reflect the way in which the content is taught in the classroom to the extent possible. However, the tools and techniques used in DL are very different from those available in the classroom, and some tools are available that may provide even greater benefits to learners in the DL environment. This paper presents a research-based approach to transitioning content from traditional courses to the DL environment. It also provides a toolkit that summarizes the paper's approach. The toolkit contains a matrix to help learners attain a variety of goals in DL environments and a set of questions and tips educators should consider when transitioning content to a DL environment.

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INTRODUCTION

The use of Distributed Learning (DL) environments increases mobility and force readiness, reduces costs, and provides a sound learning experience to our dispersed civilian, government and military learners (Shanley, Leonard & Winkler, 2001; Wisher, Sabol & Moses, 2002). In developing online content for a DL version of an accredited course that has previously been taught face-to-face, the primary goal (due to accreditation) is to ensure that the learners taking the DL course can meet the same learning objectives as those taking the face-to-face course, and it is also important that the DL version reflect the way in which the content is taught in the classroom to the extent possible (note: when working with a training or course that is not accredited by an outside body, the course designer has some flexibility to adjust the course to the learning environment). These goals both support continued accreditation for courses and provide consistency of results. Yet the tools and techniques used in DL are very different from those available in the classroom. How, then, does one develop an experience that is at least "equivalent," or even take advantage of tools that may provide even greater benefits to learners in the DL environment?

In order to help resolve this issue during the planning and design phase of transitioning classroom courses to the DL environment, the Uniformed Services University of the Health Sciences (USUHS), Education and Technology Innovation Support Office (ETI) has developed a research-based approach that links methods for helping students attain objectives in the classroom environment to methods that can be used in DL environments. This paper presents details of the approach, and the appendices of the paper provide a toolkit summarizing the approach. The toolkit consists of 1) a matrix that describes ways to help learners attain a variety of goals in DL environments, and 2) a set of questions and tips educators should consider when transitioning content to a DL environment.

The toolkit provides a lens for educators to use in analyzing their content and instructional approach in the classroom environment. It also helps them to focus on the development of sound strategies for transitioning courses to the DL environment. This paper differs from the work of Dr. Ruth Colvin Clark (2008) and others in its focus on the conversion of existing materials for use in a new environment rather than the development of effective original materials. Also, the toolkit presented in this paper, unlike Clark's matrix (2008), was developed for use in converting Department of Defense (DoD) professional education courses that emphasize critical thinking skills, rather than training courses that are geared toward the development of performance skills. Nevertheless, many of the processes and approaches described in the paper are applicable to the conversion of training courses as well as educational courses

BACKGROUND

DL is a model of instruction incorporating multiple technologies and media that are accessible from a variety of locations at any time, allowing students to engage with course content at their own pace while at a distance from the instructor and/or the other participants in the course (Simonson, Smaldino, Albright & Zvacek, 2002). While DL's flexibility has many advantages for the military and other organizations with wide geographic reach, the transition from classroom-based learning to DL requires careful planning and attention to enhance learner motivation, which can be an issue for participants in a distributed program (Muilenburg and Berge, 2005). High dropout rates and low levels of learner satisfaction have frequently been cited as issues with which distance education struggles (see, for example, Parker 1999 or Martinez 2003). This section of the paper provides a brief summary of key principles of andragogy and constructivism, two learning theories that the authors of this paper believe underlie many of the best practices for the development of DL environments. It concludes by explaining the

importance of developing collaborative learning activities in DL environments.

Andragogy, a theory developed by Malcolm Knowles to explain how best to motivate adult learners, emphasizes that adult learners benefit from instructional strategies that respect their prior knowledge and experience. Adult learners are also most motivated to learn when they know that what they are learning will be directly applicable outside the classroom (Knowles, 1990:57, cited in Atherton 2003).

Another basic tenet of andragogy is the adult learner's need for self-direction (Knowles, 1984). Constructivism, a theory of teaching and learning that emphasizes the active role that the participant must take in "constructing" meaning during a learning experience (Atherton 2003), provides an approach to course design that enables self-direction. In a constructivist learning environment, the instructor and the learning environment provide some basic information and guidance to learners (Hoffman 2004), but the learners also must interact with the information and with each other so that they can understand the content and determine how to apply it. Constructivism's emphasis on real-life application, multimedia learning, and active learning make it an ideal approach when designing DL environments for adults.

Like the use of constructivist principles, incorporating interaction with other learners into DL course design can also enhance learner motivation (Picciano, 2002; Shea, 2006). Well-designed synchronous or asynchronous discussion or collaborative activities can remind the learners that they are not entirely on their own, countering the lack of "presence" frequently described as a problem in DL environments (e.g., McDonald et. al., 2005). Effective collaborative activities foster mutual interdependence, encouraging learners to interact with their fellow participants in order to share their experiences and work towards common goals. In doing so, they come to know and trust their fellow participants, feeling more engaged in the course (Rovai, 2002; McDonald, Noakes, Stuckey & Nyrop, 2005; Shea, 2006). Effective facilitation of learner interactions uses learner-centered approaches to teaching. Skills needed for effective facilitation of online activities include:

- Motivational skills
- Ability to develop thoughtful discussion questions related to the topic and appropriate to the desired cognitive outcomes
- Skill in modeling desired methods of communication
- Ability to contribute advanced content knowledge and insights; weave together discussion threads; and help participants apply, analyze and synthesize content

(Adapted from *Effective online facilitation*, 2002).

In order for learners to engage fully in an online course in a way that enables them to attain course goals, it is important to design learning activities that they see as relevant to their work outside of the course. Learning activities should also enable them to work through materials in a self-directed fashion and provide them with a sense of social presence.

TRANSITIONING FROM THE CLASSROOM TO THE DL ENVIRONMENT

The remainder of this paper provides a systematic approach to redesigning classroom learning activities for a DL environment. This approach takes advantage of DL tools to engage learners while enabling the learners to meet the same learning objectives they would meet in a classroom version of the course.

Planning Course Logistics

The first step of the transition is a modified needs analysis. Because the learning goals for the course have already been defined, the primary focus at this stage is on analyzing resources and capabilities for both the providing organization and the learners.

Considering both the tools and the skills that the learners will have greatly improves their chances of success. Participants who are not prepared for the online environment can have a negative impact on other learners and on the instructor (Fink, 2002). In order to enable all learners to participate successfully in DL courses, it is important to make clear to learners before the course starts what the minimum level is for technical skills, content knowledge, hardware and software. Likewise, you should recognize that some of your learners may have disabilities or may not be able to load software or plug-ins onto their computers and, for security reasons, they may not be able to use programs or features that enable interactivity, such as Adobe® Flash® or some types of scripting. Providing low-technology or alternative versions of materials and activities will give all learners the opportunity to meet the course goals and will also help you to meet federal guidelines for Web accessibility (Section 508).

Alternative versions are also important because, while online learners expect DL courses to be available

"anytime/anywhere" and appreciate the convenience, some learners may have limited access to computers or the Internet. Providing alternative means of access to materials, such as downloadable or printable documents, or even providing some materials in advance via Compact Disc (CD), can enable these students to remain engaged and complete work even at times when they do not have Internet access.

As you explore and find ways to address your learners' possible technical limitations, it is also important to examine your organization's ability to support learners with technical information as well as an orientation to online learning. Providing effective and reliable support for learners (and instructors) contributes greatly to the success of DL courses; without such support your learners will be spending more time trying to gain access to and familiarity with the system and less time with the content of the courses they are trying to learn (Lynch, 1999; McPherson & Nunes, 2008). If your organization does not have resources available for the development of content to provide support and online orientation, consider taking time to review existing materials developed by other institutions, such as tutorials about hardware, software and the online learning process, so that you can direct your learners to effective existing resources.

Planning Course Tools

Many instructional tools and techniques that are available in the classroom are also available in the DL environment, but they can be supplemented or replaced by other methods. Using the right tool for DL course activities helps learners to remain engaged and allows them to meet the course goals efficiently and effectively. This section of the paper introduces some of the tools available to you in DL courses and some considerations for their use; the next section of the paper will cover the methods used to develop content and activities for the DL environment.

One important tool for content distribution is a learning management system (LMS). In addition to providing administrative capabilities and course material storage and distribution, many learning management systems include communication tools (e.g., discussion boards, chat tools, wikis, blogs), separate areas for private group work, assignment submission tools, assessment tools, gradebooks, and tools for gathering usage statistics. Other LMS considerations include the system's conformance with the Sharable Content Object Reference Model (SCORM) standards, the system's ability to incorporate content developed for other delivery systems, and licensing models and fees. When selecting an LMS, it is important to start by determining which capabilities and functionalities you require so that you can find the tool that is best suited for your organization.

Tools for Imparting Facts in the DL Environment

There are three primary ways that facts can be imparted in the online environment.

1. Lectures can be transmitted synchronously via Web conferencing software, which also usually allows archiving so that learners can view conference sessions at a later date.
2. Lectures can be recorded and distributed via downloadable or streaming video. Note that the size of video files can be a problem for distributed learners who have low bandwidth connections or limited connectivity. Suggestions for addressing potential problems with file size are provided in the "Planning Course Content and Activities" section of this paper.
3. Information usually conveyed during lectures can be distributed via text or media-rich HyperText markup Language (HTML) files posted in an LMS.

Tools for Discussion in the DL Environment

Online discussion boards are structured areas where learners can post brief text-based messages for their classmates and instructors to read and provide responses. Voice-based or text or media files can also usually be posted on discussion boards. Discussion boards allow learners to begin to analyze and apply the course content at their own pace, which can be very helpful for learners with limited connectivity. Blogs, or personal online journals to which readers can respond, provide a less formal and structured method for enabling learners to discuss course content with each other. The Web conferencing software mentioned previously can also be used for discussions if all participants have the ability to speak as well as listen via their computers. Finally, synchronous voice- or text-based chats can also provide a way for learners to communicate with each other and with the instructor.

Other Tools

In addition to the basic tools and DL activities mentioned above, DL environments provide a variety of options for learners to engage with content and complete work assignments.

- As noted previously, most LMSs include group communication areas with discussion and other tools students can use for small group activities.
- While classroom presentations are likely to be developed using text documents and/or presentation software, the DL environment allows for the use of a variety of additional tools. For

example, learners with the proper equipment can create video or audio files for distribution to their classmates and instructor.
- Most LMSs include wiki capabilities, which enable learners to collaborate on developing and modifying text-based content online. With wikis, all modifications are recorded, enabling an instructor to assess participation in the group work.

In short, the DL environment provides tools that can be used to develop a wide variety of types of learning activities that enable students to meet the same objectives that can be met in a classroom.

General Planning for Course Content and Activities

Once you are familiar with the tools available in the DL environment, you can begin to design appropriate DL materials and activities. This section of the paper deals with copyright considerations and general planning while the next section provides more specific guidance on developing materials and activities.

1) Copyright

Recall that it is always important to provide technical support for learners and keep the learners' technical skills and technology limitations in mind as you develop course materials and activities.

In addition to providing technical support and uninterrupted access to materials, it is also important to consider the copyright status of the materials you wish to use. If you plan to keep copies of DL materials on your server, you should use materials that are copyright-free or in the public domain. Linking to outside materials can also be a good way to avoid copyright violations, but note that these links must be checked each time a course is being deployed to ensure they remain active. Before you begin developing online materials, it is advisable that you check with your organization's legal counsel to ensure that you are in compliance with relevant copyright laws.

2) General Planning for DL Materials and Activities

Best practices dictate that face-to-face content not be "cut and pasted" into an online environment. Instead, you should determine the goals of the classroom version of the course or activity and attempt to develop DL content and activities that meet those goals. It is also important to take advantages of the tools available in an online environment and the strengths and characteristics of the online environment (American Federation of Teachers Higher Education Program and Policy Council, 2000). Note also that interactive online materials (as opposed to more passive materials such as videos or text-only documents) increase learner motivation and engagement. Using different types of media to meet differing learner needs and learner preferences also promote longer-term retention of the knowledge (Clark & Mayer, 2003, Gagne, Wager, Golas, & Keller, 2005; Cook, Thompson, Thomas, Thomas & Pankratz, 2006).

In order to develop effective DL activities, when modifying an activity from a classroom course for use in a DL course, focus should be on the objectives it is designed to meet, not on the way that it is carried out. The following example from the authors' experience demonstrates how activities can be reworked for use in online environments by considering the goals and reworking the activity rather than simply "moving" it.

> A classroom instructor uses an activity in which participants are provided with a list of steps in a process that are not in the proper order and each individual in the group must work alone to put the steps in what he or she thinks is the proper order. Then the instructor asks one person to state what he or she had first, and the next person says what he or she thinks should be second, based on what the first person said should be first; then the next person says what he or she thinks should be third based on what the second person said should be second, etc. After all steps have been added, the instructor discusses the results.
>
> The goal of this activity is to show the participants that there is no one right order, but that there are different models and that it is important to consider the context when planning the next step. In a DL environment, it would be difficult to reproduce the activity because it requires synchronous work by the participants. The activity could be modified for a DL environment by asking the individual participants to work alone to put the steps in order, as they did in the classroom. The next step could be modified in many different ways to fit the online environment. Learners could be asked to post their responses on a discussion board along with explanations of why they put the steps in the order they did, and then be asked to review the responses of other participants and comment on the similarities and differences, with special attention to the reasons for putting certain steps in relation to certain other steps. Another method would be to have the learners email responses to the instructor and then have the instructor post a few different models with explanations of their strengths and weaknesses. This would meet the same goal as the initial activity, demonstrating that there are many different models for the same process. However,

the activity has not been simply translated into the DL environment, but modified to take advantage of the strengths of that environment and mitigate its limitations.

As demonstrated in the previous example, online communication tools open up a variety of possibilities for the redesign of classroom activities for the DL environment. While the lack of physical presence can be seen as a limitation of the DL environment, DL courses can replace physical presence with "social presence." Online discussions are different from classroom discussions because they must be designed to encourage "social presence" as well as meet program goals in order to keep learners engaged and motivated.
For courses with one instructor acting as a facilitator of discussion and collaborative activities, the optimal class size is about 15–20 learners to ensure that the facilitator can provide enough support and feedback to all participants (Duckworth, 2001; Laws et al., 2003) and to enable rich discussion and the establishment of community. If class size cannot be restricted, learners can be divided into smaller groups. Use of small groups makes the workload and reading more manageable for the learners and also enables them to forge closer bonds with a smaller number of people.

The type of work done in the groups is also important in fostering "social presence."

- Emphasis on online interactions can help generate a group identity, particularly if the interaction is a component of collaborative work. Learners must feel mutually interdependent. Interdependence can promote an atmosphere of joint responsibility and a sense of personal and group identity, thereby nurturing a sense of community.
- Goals and milestones for the group to work toward need to be provided. In effect, those in the learning community need to build, problem solve, invent, create, and co-learn. Both the experienced learners and the novices should support each other through interaction and negotiation of ideas.
- It is important for learners to apply course content to their lived experiences and personal situations. This was crucial to the emergence of a learning community [in a group studied by Barab, et al., 1999] since student identity and personal development could co-evolve with course participation and increasing competence with course material. Qualitative analyses of student posts and later member checking indicated that the design of an open, flexible, and inviting climate for learning was central to the evolution of this community.

(Based on Rovai, 2002; McDonald et al., 2005).

Planning Activities for Specific Learning Goals

1) Imparting Information
Imparting information allows learners to benefit from the guidance of an "expert instructor." As noted in the previous section, there are three primary ways to impart factual information in the DL environment: via web conferencing, via video or audio recordings or via text or media-enhanced Web pages. Each of these options has benefits and drawbacks.

- **Web Conferencing**: Synchronous web conferencing allows distributed learners to interact with the instructor and each other. It also frequently incorporates whiteboard functionality. Once the instructor learns how to use the tool, preparation for such lectures requires no more advance preparation than would preparation for a classroom course. Web conferencing software also usually enables the lecture to be archived. However, keep in mind that learners who are watching a recording are not necessarily having an "equivalent experience" to those who attended live. They have no possibility for questions or two-way interactions. As well, distributed learners who have low-bandwidth connections or limited connectivity may have problems watching synchronous or archived Web conferences.
- **Audio/Video Recordings:** Lectures can be recorded and distributed via video. However, the large file size can be a problem for distributed learners who have low-bandwidth connections or limited connectivity (Schone, 2007). If the recording consists of just a single speaker with no visual aids, consider using an audio recording with a static image visible rather than video. If you are providing content via video and audio files, distribute those files to learners in advance via CD or DVD if it is feasible to do so. As well, note that learners frequently have difficulty focusing on and retaining information conveyed by longer online video and audio materials. It is best to break audio or video content up into 10- to 15-minute segments (Schone, 2007) for downloading or streaming and ensure that learners can control playback if they wish to pause, rewind, or jump to a specific point in the presentation (Clark and Mayer, 2003).
- **Text or Media-Rich Web Pages:** Providing lecture content in Web pages is most friendly to users with limited connectivity or low-bandwidth connections. It allows all users to interact with the content at their own pace. It also allows the

incorporation of media elements such as video, audio, graphics, and interactive animations. Such media elements allow the learners to engage with the material in a variety of ways that learners attending a classroom lecture cannot. This engagement provides a more constructivist learning experience that accommodates learner preferences (Clark and Mayer, 2003). While using text or media-rich files provides learners with a convenient way to access and review course content, this method also requires the instructor and the providing organization to develop content well in advance of the course delivery.

2) Conducting Discussion/Debate

Once learners have begun to grasp the factual content to which they have been introduced, learning activities should focus on helping them to engage with the content and begin to explore relevant examples from their own experience, and perhaps begin some basic application of the content. Just as you might use discussion in the classroom to provide learners with a structured environment in which to explore concepts, so too can you use synchronous or asynchronous discussions in the DL environment to do so. Discussions in DL courses effectively bridge the "transactional distance" between distance learners and enhance their learning experience helping students to deepen their learning of concepts (Gagne et al.,,,2005; Sargeant, Curran, Allen, Jarvis-Selinger & Ho, 2006).

Class discussions in DL courses will rarely be able to provide the same visual and auditory clues to the instructor and the learners that they can receive in a classroom course. For that reason, it is important to develop social presence using other methods. The instructor or facilitator can use the following techniques to help establish a sense of community in a DL course in which none of the learners are likely to meet face-to-face.

- Let his or her personality show through in introducing questions or responding to learners' posts
- Include an icebreaker activity early in the course to enable learners to get to know each other
- Set expectations for processes, communications, and end goals (e.g., netiquette, nonattribution policies)
- Develop effective discussion board questions. Characteristics of effective discussion board questions include:
  - They do not have "Yes" or "No" answers
  - They do not have one correct answer – invite alternatives or expansion, for example:
    - "What are some of . . ."; "What other . . ."
  - They suggest that there are degrees/gradations involved, for example:
    - "To what extent . . ."; "How much . . ."
  - They use verbs that require complex thinking skills, for example: analyze, synthesize, evaluate
  - They do not "telegraph" the facilitator's own views
  - They invite follow up responses
    - "Explain why you agree or disagree with X"
- They encourage learners to relate life, work, and educational experience to the assignment or activity

  (Guidelines drawn from the authors' experience as well as *Effective online facilitation*, 2002; Moore, J., Sener, J., & Fetzner, M., 2006).

3) Conducting Group Activities

Group activities in the online environment, like those in the classroom, are particularly effective for helping learners to develop expertise. They also enable learners with expertise in certain areas to share that expertise with their peers. Group activities in the DL environment frequently can also involve discussions or the development of group presentations via tools like Web conferencing, audio, video, or wikis. As noted earlier in the paper, the key when developing an activity for a DL course is determining the goal of the activity in the classroom and finding a way to attain that goal using the tools available in the DL environment, not in replicating the classroom experience. Thus, for example, if you have learners work together to develop and deliver a presentation and give it together in the classroom, you might have different goals for the activity that might guide the way you would structure it for a DL environment. If you want them to be able to mentor each other during the work process, you might use a collaborative workspace like a wiki. If, on the other hand, the goal is simply to have individuals work independently and weave a final narrative, you could have them use email or a group discussion area as the primary tool.

A variety of strategies for putting students into groups are available to instructors. When you have a group that is widely dispersed, it is important to know the location of your learners so that you can determine whether it is feasible for them to do any synchronous work. Synchronous work can cut down on the time required for group activities and can also contribute to a sense of community within the group. Depending on the assignment, you may want to group students based on experience or prior knowledge. For example, you could put people with different experience levels into the

same group to allow peer mentoring to take place (Sargeant et al., 2006).

Groups of four to five are usually most effective. They enable all students to get involved in the work and yet are small enough that all learners will need to participate to complete work. In a DL course, you cannot observe group work the way that you can in a classroom environment. You can, however, discourage learners from "shirking" their work by asking learners to provide feedback on the work of others in their group. As well, if learners are doing their work in group areas of an LMS, it is likely that you will be able to access the group area and observe their work. Finally, one effective technique for ensuring all learners in a group take part in the activity is to designate roles that learners in a group must fill. The assignment cannot be completed correctly unless all team members have done their work.

4) Problem-solving and Critical Thinking

Problem-solving and critical thinking are likely to be involved in many discussion and group activities, even if that is not their primary purpose. However, if you are designing a DL course and you want people to focus specifically on problem-solving and critical thinking, you should plan activities around them. While papers or text-based problem sets, like those that might be used in a classroom, are an option in a DL course, the DL environment also enables the use of media that can enable more "realistic" problem-solving activities. Interactive case studies are widely used to enable learners to identify and analyze critical information. Such cases can be text based, media-enhanced, or even fully immersive (Clark, 2008). When developing problem-solving activities, it is important to make problems as realistic as possible and ensure that the learners have access to all of the information they need to solve the problem.

Critical thinking can also be encouraged by developing detailed scenarios or problems and requiring learners to be able to explain their rationale for their responses. While such work might be part of class discussion in a classroom based course, in a DL course, such activities can be very effective in small groups or discussion board activities. Media-enriched computer-based activities can also be effective for teaching critical thinking and problem-solving. Even multiple choice questions can help learners develop problem-solving skills if the questions focus on higher-order concepts. Such questions do, however, take longer to write than can more basic, lower-level questions.

5) Learning and Practicing Skills/ Conducting Application or Performance Assessment

In the classroom, faculty members or experts often demonstrate skills and then provide learners with feedback as they practice. Web conferencing or video can be an effective medium for demonstrating psychomotor or behavioral skills in the online environment, though bandwidth issues and video quality should always be a consideration. In the DL environment, computer-based simulations can provide both practice and expert feedback (Clark and Mayer, 2003; Clark, 2008). The provision of feedback is a crucial component of learning and practicing skills. It is therefore important to be able to define correct performance in such a way that correct performance can be clearly identified. Incorrect performance should be identified and remediated, either by a computer program or by a trained observer.

Role-based discussion board activities can also provide learners with the opportunity to practice certain types of skills, such as communication skills or interpersonal skills, in a safe, nonthreatening environment (Gagne, et al., 2005; D'Eon, M. Proctor, P., & Reeder, B., 2007). While such role plays can be effective when conducted in person in the classroom (Nikendi, Kraus, Schrauth, Weyrich, Zipfel, Herzog & Junger, 2007), many learners do not like to participate in such activities because they are uncomfortable with the visible acting required. Discussion board activities that require learners to respond in a way that they would if they had a certain attitude can also help them to develop that attitude, and can reduce the "performance anxiety" that can arise from role-playing activities in the classroom.

A crucial part of developing critical thinking and psychomotor skills in computer-based activities is providing feedback that lets students know what they have done right and wrong, enabling them to learn from their mistakes and build on their successes (Clark and Mayer, 2003). As with the preparation of informational materials, the development of effective feedback requires a significant investment of the instructor's time during the initial preparation of the DL materials. However, if the activities are well-designed so that they focus on core principles that do not change over time, and if the feedback is effective, such activities can be re-used over time. In the long term, the instructor may spend less time on course development.

While performance skills are generally assessed in person in classroom courses, electronic portfolios enable the demonstration of psychomotor skills via video as well as the written documentation of cognitive skills (Gagne et al., 2005). Portfolios generally require

learners to reflect on and analyze their performance in a way that classroom observation may not.

6) Promoting Attitudinal Change

Attitudinal change in the DL environment, as in the classroom environment, is a function of motivation and engagement. Similar techniques can be used in both environments, though the implementation in the DL environment can differ to that used in the classroom. Entertaining videos or other media showing admired figures modeling the desired behavior can be used to help provide learners in either environment with motivation to change (Gagne et al., 2005).

Role-playing can also encourage learners to adopt attitudes by requiring them to temporarily identify with positions or beliefs different from their own, which can be the first step to a more long-term adoption of those positions or beliefs (D'Eon, Proctor, & Reeder, 2007). As noted above, role-playing in the discussion board environment can be less stressful for students than role-playing in the classroom environment.

7) Conducting Written Assessment

Written assessments can be conducted in a similar fashion in classroom and DL courses via papers, problem sets, portfolios and exams or quizzes. Online exams allow for a wide variety of question types and responses. LMSs enable many types of questions to be graded automatically, which can enable the instructor to grade the DL version of an exam more quickly than the classroom version. However, security tends to be more of a concern with DL tests. One can counter security concerns by requiring DL learners to take exams in a proctored environment, and some organizations even require the use of web cams and other technologies to prove that the person submitting an exam is the one who took it (Simonson et al., 2008).

8) Developing a Syllabus

Once you have thoroughly analyzed the learning objectives and designed the activities, you should develop your syllabus. Composing a syllabus is an important step in the process of crafting educational experiences for your students. If carefully developed, your syllabus will provide a common plan and reference that will allow you and the participants to focus more on course content and process, and less on course mechanics and procedures. It can be an important learning tool that communicates expectations and reinforces intentions, roles, attitudes and strategies that you will use to promote active, purposeful, and effective learning in your course. An effective syllabus will tell learners what they need to do, why they are doing it, and when they need to do it. Communicating the activity and course objectives to the learners can increase learner satisfaction and motivation (Gagne et al., 2005; American Federation of Teachers Higher Education Program and Policy Council, 2000).

In developing a syllabus and timeline for the online course, keep in mind that collaborating in a DL course frequently takes longer than collaborating in a face-to-face course. While collaboration is an important part of establishing social presence, learners may have competing demands on their time and they need to be able to schedule time for collaboration with their peers. Giving participants the ability to choose when to complete their activities (such as telling them that a group assignment must be submitted in four days but allowing them to determine when and how the work will be completed) generates more participation in activities and more participant satisfaction (Valenta et. al., 2001). Providing learners with this type of flexibility also aligns with the principles of andragogy and constructivism in meeting the needs of adult learners.

CONCLUSION

When planned holistically, transition of courses from classroom to DL environments can increase mobility and force readiness, reduce costs, and provide a sound learning experience to our dispersed civilian, government and military learners (Shanley et al., 2001; Wisher, Sabol & Moses, 2002). The DL environment enables the use of a variety of tools and techniques that can help learners attain the course goals. The effective transition of classroom material to a DL environment requires careful planning and the consideration of technical issues as well as instructional issues so that the learners in the DL environment can attain the same learning objectives as those in the classroom environment.

As with any change in environments, this change also requires the course planners and instructors to focus not only on the change in format (from face to face to DL) but on the effects the change can have on the learners. Reviewing research from other implementations can help support decision making with leadership as well as provide a sound basis for change.

Appendices A and B provide a toolkit to help instructors analyze tools and approaches available for various types of activities in the DL environment.

APPENDIX A: Matrix of Content Types and Approaches to Distributed Learning Activities

Activity Type / Objective	Face-to-Face Classroom	DL – Asynchronous Tools	DL – Synchronous Options (Beyond Asynchronous Tools)

Imparting Facts	• Lectures / direct instruction
	• Demonstrations
	• Texts/Readings
	• Videos
		• Online course materials, usually provided via a Learning Management System (LMS)
		  o Announcements
		  o Readings
		  o Media (static and interactive)
		  o E-mail
		  o Instructor-produced audio
		  o Instructor-produced video
			• Live chats
			  o Text
			  o Phone (with or without video link)
			  o Online conferencing system

Conducting Discussion / Debate	• In-class discussion / debate	• Discussion boards – large group discussions
		  o Usually text-based; can usually include media and text attachments
		• Blogs
			• Live chats
			  o Text
			  o Phone (with or without video link)
			• Online conferencing system

Working in Groups	• In-class discussion • Papers / Presentations	• Private discussion boards – with structured group work • Wikis • Learner-produced audio • Learner-produced video	• Online conferencing system • Video teleconferences
Solving Problems / Thinking Critically	• Problem sets • In-class discussion	• Discussion board (as a class or in small groups) • Interactive case studies • Problem sets • Papers/presentations • Blogs • Wikis	• Online conferencing system (as a class or in small groups)
Learning and Practicing Skills / Conducting Application or Performance Assessment	• Role-playing • Simulation activities	• Interactive Case studies • Homework • Problem sets • Interactive media (with feedback) • Computer-based simulations • Multiplayer gaming • Discussion boards • Portfolios	• Video teleconferences • Videos – learner-produced
Promoting Attitudinal Change	• Group discussion • Role-playing • Video	• Discussion boards • Interactive case studies • Simulations • Video • Media with entertainment / motivation value	• Online conferencing system • Video teleconferences
Conducting Written Assessment	• Tests/Quizzes • Papers	• Discussion boards • Tests/quizzes • Papers • Graded simulations • Portfolios	• Live chats (text-based) • Quizzes in online conferencing tools

APPENDIX B: Considerations When Transitioning to the DL Environment

Activity Type / Objective	**Considerations when transitioning to the DL environment**

Course Analysis and Planning (General)	• What type of constraints/restrictions do your learners have?
	  o Time
	  o Location
	  o Internet access (including access to restricted sites)
	  o Software/hardware (e.g., ability plug-ins; webcam)
	  o Security clearances (if relevant)
	• What type of technical skills do your learners need? How familiar with online learning and the online learning environment are then? Can you provide support if they do not have the skills?
	• What type of technical support/online learning orientation can you provide to your instructors and learners?
	• How large will your classes be?

Imparting Facts	• Files should be as small as possible:
	  o Focus on text
	  o Keep graphics small
	  o Use audio rather than video, and use either only if necessary
	  o Provide materials in advance on a CD/DVD if possible; use online site for updates
	• Consider the following questions:
	  o What type of content do you have available? What types might you need to create?
	  o Do you have content that can be easily transitioned to an online environment or does it need to be created?
	  o Are you compliant with applicable copyright laws?

Conducting Discussion / Debate	Use effective techniques for online facilitation. The facilitator should:
	• Let his or her personality show through in introducing questions or responding to learners' posts.
	• Include an icebreaker activity early in the course to enable learners to get to know each other.
	• Set expectations for processes, communications, and end goals (e.g., netiquette, nonattribution policies)
	• Encourage learners to relate life, work, and educational experience to the assignment or activity.
	• Develop effective discussion board questions. Characteristics of effective discussion board questions include:
	  o They do not have "Yes" or "No" answers.
	  o They do not have one correct answer – invite alternatives or expansion, for example:
	  ▪ "What are some of . . ."; "What other . . ."
	  o They suggest that there are degrees/gradations involved, for example:
	  ▪ "To what extent . . ."; "How much . . ."
	  o They use verbs that require complex thinking skills, for example: analyze, synthesize, evaluate.
	  o They do not "telegraph" the facilitator's own views.
	  o They invite follow up responses
	  ▪ "Explain why you agree or disagree with X."

Activity Type / Objective	Considerations when transitioning to the DL environment

Working in Groups	• Use the appropriate tool based on the learning goal.
	• Use systematic grouping strategies:
	  ○ Keep groups at around four to five learners.
	  ○ Group learners by geographic location if synchronous work is desirable.
	  ○ Group learners by differing levels of knowledge/skills/experience to allow learners to learn from each other.

Solving Problems / Thinking Critically	• Ensure that the problem's goal and any constraints on the solution are clear to the learners. • Ensure that the learners have access to all of the information they need to solve the problem. • Make problems and scenarios as realistic as possible.
Learning and Practicing Skills / Conducting Application or Performance Assessment	• Provide programs/practice materials on a CD in advance if possible. • Ensure there is clear, effective feedback built in to materials. • Consider working with somebody in the same location as the learner, creating a rubric that person can use to assess performance.
Promoting Attitudinal Change	• Provide video-based materials (role models) on a CD in advance if possible. • Require learners to "role play" by adopting the desired attitude in learning activities.
Conducting Written Assessment	• Consider use of on-site proctors/testing areas if possible. • Explore security issues and possible resolutions (e.g., the use of webcams, honor systems, etc.) as applicable for your situation. • Ensure there is clear, effective feedback built in to materials.

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