

How to Implement the NIU



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Prelude

As explained in separate white papers, we would propose to rely heavily on “blended learning” methodologies to implement the NIU concept. This paper will examine in more detail the actual learning programs and issues associated with the implementation.

The Residential Education and Development Program

The NIU’s residential program will consist of a variety of education and learning services/curricula that meet the job-related needs of the analysis community. The NIU should have the capacity to house up to 326 students per week with associated dining and support functions and a variety of distance learning nonresident instruction. It will include the development and delivery of joint courses in analysis, leadership, new science principles, and innovation/creativity. All the joint core and specialty courses will be delivered to the residential students either at the NIU Center or supplemented through existing National Security Community schools. Most of these joint courses could be developed by an educational and learning contractor on an incremental basis beginning fall of 2006 and will be phased in at the NIU Center in 2007. Time would ultimately be driven by contract approval and funds being available to proceed.

As stated in previous papers, we believe that senior leadership development especially at the beginning of NIU implementation is key to a successful fielding of this concept. The following paragraphs will explain in greater detail our concept of conducting this topic of learning and development.

Leadership Development and Career Planning

Leadership development and career planning designed for management and supervision will be a part of the residential program and will be applicable National Security Community with the DNI as the executive agent. A major supporting requirement is to ensure an effective competency-based learning related to supervision, management and leadership occurs within the context of our analysis community. This effort should capitalize on existing National Security Community Agencies and Military Services programs as well as those external to the DNI, like University programs.

Leadership competencies that are considered critical for this segment of the work force need to be developed or validated based on NSC current and emerging leadership requirements. The competencies should be cross referenced with those developed by Office of Personnel Management (OPM). The management/supervision/leadership competency profile and the critical tasks relevant to the structuring of courses for this group are depicted in the following managerial/leadership competency profile chart (Figure 1).

Managerial Leadership Competency Profile

Administrative	Hands-On	Basics
<p>A. Planning</p> <ul style="list-style-type: none"> - Strategic Planning - Short and Long Term - Time Management 	<p>A. Interpersonal</p> <ul style="list-style-type: none"> - Nonverbal Skills - Active Listening - Wellness Oriented - Persuasiveness - Motivational Skills 	<p>A. Quality Initiatives</p> <ul style="list-style-type: none"> - Team Building - Ethics - Values - Vision - Customer Service
<p>B. Organizing</p> <ul style="list-style-type: none"> - Organizational Design 	<p>B. Tactical Proficiency</p> <ul style="list-style-type: none"> - Resources - Technology - Personnel Management - Operations 	<p>B. Organizational Change</p> <ul style="list-style-type: none"> - Learning Organization - Human Resource Planning - Corporate Perspective - Input-Process-Output Modeling
<p>C. Directing</p> <ul style="list-style-type: none"> - EEO Policies - Management Style - Diversity 	<p>C. Communication Effectiveness</p> <ul style="list-style-type: none"> - Writing Skills - Speaking Skills - Briefing Skills - Charting Skills 	<p>C. Personality Profile</p> <ul style="list-style-type: none"> - Innovative - Adaptable - Action Oriented - Decision Maker - Problem Solver - Change Agent - Practical - Foresightedness
<p>D. Controlling</p> <ul style="list-style-type: none"> - Organizational Evaluation - Performance Systems - Marketing 	<p>D. Conflict Resolution</p>	<p>D. Special Interest Awareness</p> <ul style="list-style-type: none"> - Stakeholders
<p>E. Security/Safety Awareness</p> <ul style="list-style-type: none"> - Internal Control - Waste/Fraud/Abuse 	<p>E. Personnel Assessment</p> <ul style="list-style-type: none"> - Interview Skills - Situational Factors - Performance Appraisal 	<p>E. Mentoring/Coaching/Counseling Skills</p>

Figure 1. Managerial Leadership Competency Profile.

The managerial/leadership competency profile is relevant to journeymen, junior and senior professionals as well as executive personnel — the major difference in the attributes is the weight, scope and complexity expected for the position held.

The intent of the Leadership Development and Career Planning is to provide the student with a developmental experience profile detailing four recommendations: (1) courses relevant to his/her growth; (2) mentors to seek out for coaching; (3) job experiences that would be pertinent to include difficult work situations; and (4) interpersonal detractors and/or delimiters that need to be softened and changed for furthering a career. With this “impact” information, the student would be armed early in his/her career to move in a very positive direction for success as a future leader.

Research

The NIU’s research function will focus on ten interconnected areas of concentration which support the continued development of quality education products and services for the NIU. They are: (1) state-of-the-art analysis techniques and tools; (2) analysis of education/learning alternatives; (3) marketing research; (4) curricula development; (5) faculty assessment; (6) instructional systems design evaluation; (7) intergovernmental, infrastructure and private enterprise assessment of educational programs; (8) work force assessment; (9) trend identification and assessment that impact National Security Community NIU strategic planning to include executing a focused vision; and (10) quick reaction studies for the DNI.

The strategy to be employed by the DNI will use a dual approach. The “best-in-class” contracting team will center their energies on how best to attack the above ten research areas. Besides using their own assets, the contracting team will support the research program by using existing faculty/students from the National Security Community academies, institutes, schools, and universities to do certain research projects.

Interactive Distance Learning and Multi-media Instruction

Alternate delivery modes are important considerations for the Center’s residential program. For example, education and learning technology runs the full spectrum from paper-based to full service digital networks. Emerging technologies are becoming more prevalent which could empower the DNI through the centralized education contractor to aggressively pursue these opportunities now.

As the joint courses are developed and taught at the NIU Center or elsewhere, so too will the introduction of compatible distribution technologies to support these associated competency-based learning modules. Technologies exist today to support individuals, teams and feedback loops. On the technology continuum are: (1) Video Home System (VHS); (2) Compact Disc-Read Only Memory (CD-ROM); (3) Interactive Computer-Based Instruction (I-CBI); and (4) Hypermedia. At the middle range, are the slightly more sophisticated interactive distance learning (e.g., tele-training), video server Local Area Networks (LAN), and Wide Area Networks (WAN). The most refined technological methods involve broad base wireless and full service digital networks that are secure.

In an effort to develop and integrate advanced distribution technology, the education contractor would seek guidance from experts in a wide variety of message producing areas. Every course will at some point incorporate interactive multi-media and e-learning.

The Mobile Learning Program (Satellite Centers)

Besides IDL and resident courses, the DNI's National Security Community NIU Program should include the flexibility of mobile learning. These efforts will encompass a broad range of courses applicable to all areas of analysis. However, because of the immediate pressing needs of developing diverse cohort teams across the National Security Community, the program will initially concentrate on insuring this divergence is supported and reinforced. A major problem which the National Security Community confronts is with dealing with establishing interagency relationships/friendships as early in one's career as is possible. We need to insure that personnel are encouraged to develop these relationships as quickly as possible. None of the existing National Security Community schools or academies reinforces this cross fertilization and pollination but rather places emphasis on "stovepipe" thinking and action. The NIU will formally establish the mechanisms to develop and conduct teaming across National Security Community agencies.

Analysis has primarily been taught by each separate National Security Community agency with great degree of difficulty reaching all its perspective personnel. Moreover, the National Security Community schools/academies have limited bandwidth in reaching students in a timely manner. The mobile learning capability will not only solve the responsiveness issue but also deal with putting National Security Community networked students together who cannot come to a central location for learning services but can be served closer to their operating unit. The satellite locations will have the same capability that the centralized NIU facility will have.

The correct amount of the proper learning experiences at the appropriate time and place is a critical component in making an indentation into the success of the NIU plan. The desired outcome for the DNI is threefold. First, to have an analysis work force adequately developed in analysis functions. Next, the National Security Community analysts need development in systems thinking and associated systems tools and decision support tools. Finally, the employees should be knowledgeable with regard to teaming, leadership, collaboration and relationship building. The initial effort will be a major one. However, analyst development is an ongoing process requiring continuous oversight. After initial learning is accomplished, analysts must be exposed to continuous learning opportunities to keep abreast of the latest developments in their craft.

Administration of NIU

How Will This Work?

Critical to an evolving National Security Community plan and program, are administrative decisions on establishing a central focal point, devising funding mechanisms, and deciding appropriate delivery sources. To reiterate, central funding will be employed for curricula designs, course maintenance and student fees (tuition, travel and per diem costs). However, the DNI will need to designate a centralized educational administration.

To summate, analysis curricula will be delivered on a flexible basis at a pre-selected site run by an appointed Chancellor and Chief Learning Officer of the NIU and who is supported by a Board of Trustees and Circle of Deans from the National Security Community. Multiple forms of curriculum delivery (e.g., resident, satellite mode, mobile training, and multi-media) will be employed based on the most cost effective approach. Additionally, cooperative joint ventures are anticipated with other National Security Community schools, institutes and academies as well as selected Universities both nationally and internationally.

The central point of administration should be compact with a highly capable staff consisting of professionals in analysis, having extensive experience in individual National Security Community agencies, media, information management as well as curricula and instruction.

To attain commitment and insure quality for the DNI's National Security Community NIU program, depending on the construct chosen, staff will be responsible for managing: (1) the Center's facility operations, (2) National Security Community contractors, and (3) the consensus-based process and subject matter expert focus groups across the National Security Community.

Proposed Course Designs

A major ideological shift to course design requirements has emerged: moving from teacher-centered to learner-centered educational design. Prior to designing curricula, it is incumbent upon decision makers to formulate, direct, and then actively support instructional design models. In turn, course developers are required to create educational products that maximize learning. The NIU will oversee the process to assure that instructional design models are consistent with this shift in ideology and incorporate state-of-the-art instructional technology — a very difficult task to accomplish! Typically, traditionally designed curricula are viewed as neglecting to adequately make clear what students need to learn and whether they learned it. In the past, curricula developers were held accountable only for: (1) processes and not outcomes or (2) what a student was taught and not necessarily what he or she learned.

To remedy this problem, the NIU is focusing on competency-based design models which will place emphasis on both processes and outcomes. Generally, competency-based learning models are formulated not to have education and learning represent a test of endurance, but, rather, to provide proof of a student's academic and professional abilities. The NIU is committed to competency-based educational designs, with competency defined as the knowledge, skills, process abilities, and personal attributes which are required by a student to perform a job or task effectively.

Linked to competency-based design is competency-based education (CBE) where schooling should be “learner-centered.” and “performance-based.” To insure CBE is learner driven, certain process design features are embedded. These design components include completing assessments on learning tasks or doing occupational analyses, preparing behavioral objectives, and determining the most appropriate learning methods. Besides using a systematic instructional systems design as a basis for developing CBE, the NIU expects curricula developers to integrate various learning theories and advanced distribution technologies. Within this defined context, curricula developers still have a high degree of flexibility in meeting the goal of learner-centered course offerings. Also, by maintaining these parameters, a framework is set in which implementation procedures can be more easily evaluated.

Seven characteristics of NIU operations has emerged during our concept development activities. Each of these seven characteristics are briefly summarized below and are described in greater detail in the next section.

- The support of andragogy, (theories associated with adult vs. traditional learning);
- The commitment to CBE;
- The application of the latest cognitive science learning methods (e.g., the utilization of brain compatible, brain centered and accelerated learning);
- The utilization of distribution technology (e.g., distance learning through interactive computer programs or satellite down-links);
- The use of state-of-the-art instructional systems design (ISD) that can accommodate simple and complex cognitive and performance-based learning;
- The requirement for facilitate-the-facilitator, lesson plan and student courseware formats;
- The development of integrated curricula between and within functional areas that meet the needs of both military and civilian personnel.

CHARACTERISTIC ONE: Andragogy.

The NIU's adult education philosophy emphasizes a learner-centered (andragogy) over a teacher-centered (pedagogy) approach. Consistent with adult learning theories, the NIU adheres to the assumption that adult learners bring to the classroom a unique set of characteristics — a rich background of experiences, varied roles, self-directedness, and preference for immediate application of learning — that distinguish them from traditional learners. This, in turn, is compatible with the NIU's support of CBE,¹ where performance mastery is required and advanced learning methods and modes of delivery can be used in learning transfer.

CHARACTERISTIC TWO: CBE.

To insure a competency-based approach to National Security Community's NIU curricula, several key ingredients are required. Initially, job and/or cross-functional analyses of the various analysis classifications need to be completed. Common and unique job competency and task attributes are identified and constructed in [performance] measurable terms. Based on a review of a standard task model,² jobs duties and task elements are used to develop competency icons³ stated in behavioral terms. From the competencies and tasks, a series of learning objectives⁴ are written to the level-of-learning mastery required. Levels of learning are therefore defined using an appropriate educational hierarchy.

The NIU is adopting the cognitive taxonomy developed by Benjamin Bloom⁵ and his associates. Bloom's cognitive levels of the taxonomy are used as a guide in defining expected performance levels. When combining CBE design features with components of Bloom's cognitive taxonomy,⁶ there is a natural linkage of competencies to course or curricula terminal and enabling objectives. As a result, instructional designers are more effectively positioned to measure pre-established, cognitive performance criteria. (Deciding what level of Bloom's cognitive domain you are expecting the participant to be able to perform is signaled by the desired measurable performance standard you set.)

¹ Refer to: Hawkins, R.L., Defining Competency-Based Education, October, 1994; Navy Acquisition Management Training Office (NAMTO), Norfolk, VA. Call (804) 445-2700 for additional information about CBE.

² The task analysis model defines: the job (a group of task actions assigned to an individual); job duties (a major grouping of distinct activities involved in performing a job); tasks (well defined units of work with an identifiable beginning and end that contain two or more elements); task elements (specific actions or steps executed during the performance of a task).

³ Knowledge are the facts, principles, or concepts needed to perform a job. Skills are the psychomotor (physical) actions required to perform a task element. Ability is the potential to learn skills or attain knowledge. Thus, competencies are the behavioral components of job analysis: the knowledge, skills, and abilities which are required to perform a job effectively.

⁴ There are three levels of learning objectives: (1) course objectives, the highest level of an objective, which states what the learner will do at the end of a course; (2) unit objectives, a statement of what the learner will do after a group of lessons; and two forms of (3) lesson objectives, a) a terminal objective, which matches the "task" to be taught and b) supporting or enabling objectives, which matches the "knowledge" needed to do the task.

⁵ Refer to: Bloom, B.S. Taxonomy Of Educational Objectives, Handbook I: Cognitive Domain, New York: David McKay Company, 1956.

⁶ Bloom's cognitive levels - knowledge (recalling learned information); comprehension (interpreting learned information); application (using learned information); analysis (taking learned information apart); synthesis (creating something new from learned information); and evaluation (judging comparative value of learned information).

The integration of competency-based instructional design using a prescribed educational taxonomy can then be applied against an “ideal” (competency-based) set of principles composed of the following characteristics:

- Competencies that are specified in behavioral terms;
- Assessment devices that measure specific competencies;
- Instructional modules that are designed to achieve specific degrees of performance; and
- A management system positioned to determine competencies using a competency modeling approach similar to two leading edge vendors in the field of Competency Management Systems (Exceed and In Scope); insure instructional modules are capable of developing the prescribed competencies; assess learning outcomes using a family of metrics; require performance mastery to graduate; and insure training accountability is established for learners, designers, and management.

CHARACTERISTIC THREE: Application of the Latest Cognitive Science Methods.

Whether dealing with platform instruction or some form of distance learning, the DoD’s educational delivery methods are intended to reinforce accelerated learning concepts and interactive education activities that empower individual students’ self-development. By integrating learning activities that combine multiple senses (audio, visual, kinesthetic) and redundancies, course designers are afforded the flexibility to be creative and innovative. Moreover, educational literature supports the notion that hands-on exercises facilitate learning at a far superior rate than the more commonly encountered lecture-oriented, learner passive methods.

CHARACTERISTIC FOUR: The Integration of Innovative Technology.

Alternative delivery modes are important considerations for the NIU programs. For example, technology runs the full gamut from paper illustrations to full service digital networks. Emerging technologies are present which empower the NIU to aggressively pursue these opportunities now and not wait several years to introduce them. As the NIU’s “joint” courses are developed, so too will the introduction of compatible distribution technologies to support these associated competency-based learning modules. Technologies exist today to support individuals, teams, and feedback loops. On the technology continuum is:

- Video Home System (VHS);
- Compact Disc-Read Only Memory (CD-ROM);
- Computer-Based Instruction (CBI); and
- programs called interactive Kiosks (that is, multimedia)

At the middle range are the slightly more sophisticated interactive distance learning (e.g., tele-training), video server Local Area Networks (LAN), and Wide Area Networks (WAN). The most refined technological methods involve broad base wireless and full service digital networks. In an effort to develop and integrate advanced distribution technology, the DNI will require the NIU to be fully capable of implementing this emerging technology.



CHARACTERISTIC FIVE: A Flexible State-of-the-Art ISD.

The NIU will be using Dr. Ruth Colvin Clark's ISD⁷ model that accommodates both near transfer learning (facts, procedures) and far transfer learning (concepts, processes, and principles). Based on the work of Dr. David Merrill, Dr. Ruth Colvin Clark has devised a content-performance matrix which is an invaluable tool for determining style of presenting for a given type of learning information. Her 3 x 5 matrix is made up of three presentation methods (recall, recognition, and use) by five types of information (facts, procedures, concepts, processes, and principles). The approach is easy to follow and is insightful for devising lesson plans.

CHARACTERISTIC SIX: Quality Instruction.

As aforementioned, incorporating advance cognitive science learning methods into both materials and instructional style is a top priority of the NIU. Facilitate-the-Facilitator courses for designers and instructors as well as standard teaching and student manuals are prerequisites to developing CBE courses. The NIU anticipates that the evolution of facilitate-the-facilitator courses in design and instruction, and the development of standard teaching and student manuals⁸ will be part of their SOP.

CHARACTERISTIC SEVEN: Integrated Curricula.

The NIU should be aware of the preeminent need to grow professionals who are multitalented. As National Security Community broadens their relationships, classifications are going to be collapsed (i.e., broad banded) and more is going to be demanded from us in terms of our abilities. Functional course development cannot be done in a vacuum and must proceed by cross-referencing with each other, especially where there are common elements and experiences. Furthermore, no one competency need be taught in one single course. Building blocks of competencies will be taught across courses as well as modules pulled from one functional area to another.

Consensus-Based Decision Making

To gain commitment and attain quality, a process for reviewing existing or yet to-be-developed curriculum is a necessary part of effective administration. The intent of these apriori and aposterori reviews is to:

- Apply consistent corporate management approach to NIU
- Keep NIU viable in a scarce resource environment
- Make informed educational/learning management
- Ensure education/learning curricula structure efficiency — minimize duplication
- Ensure quality/effectiveness — maximize return on investment.

Such a process involves forming review teams that can conduct a series of interconnected top-down and bottom-up reviews of course design and applied learning methodologies.

⁷ Refer to: Clark, R.C., Developing Technical Training. Buzzards Bay Press, Phoenix, AZ, 1994.

⁸ Refer to: Horn R. Information Mapping, The Standard for Performance-Based Communication. Information Mapping, Waltham, MA, 1994. Information Mapping is a relatively new state-of-the-art technology for developing user-friendly, quality, documentation — used extensively in private industry and government agencies.

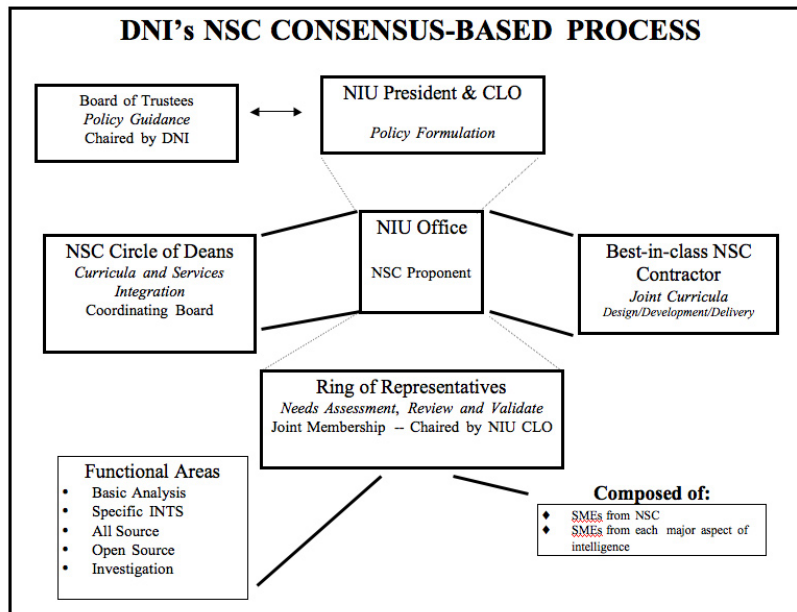


Figure 2. DNI's National Security Community Consensus-Based Process.

A Board of Trustees made up of key senior National Security Community agencies overviews the commitment process and devises policy for follow-through with NIU. A parallel coordinating board (Circle of Deans) will monitor course linkages that currently exist between the National Security Community disciplines. Additionally, there is the Ring of Representatives who establishes the need for, reviews and validates the development of specific core curricula to be developed primarily by the preferred NIU contractor. The NIU contractor will intersect with this Ring of Representatives to insure effective communication and understanding of course requirements for development and maintenance. Ring of Representatives is composed of field- and headquarters-based subject-matter experts, educational specialists, and schoolhouse professionals. The membership is dependent on the specific course under review, validation, or consideration for development.

Curricula Development Process

Curricula development is broken down into four distinct interactive feedback loops:

- Determination (Needs Assessment - Task Analysis)
- Design (Learning Objectives - Assessment - Development)
- Implementation (Try-Out/Revision) and
- Maintenance (Evaluation).

Each of the four feedback loops are designed to reduce ambiguity and promote efficiency and effectiveness. A brief dialogue on each of the feedback loops follows.

FEEDBACK LOOP ONE: Determination.

Within the determination phase, three critical considerations are the evolution of competency-based learning designs, review of existing courses and identification of the needs of the potential workforce. As previously indicated, analytical competencies are defined as relevant to CBE using some form of job⁹ or occupational analysis. Additionally, to the extent possible, relationships between knowledge, skills, process abilities and personal attributes will be mapped between tasks and subtasks.

In order to facilitate course designs, tasks and competencies are defined in behavioral terms and implemented utilizing three important analytical factors: (1) difficulty to perform, (2) importance of the task or competency to the job, and (3) frequency of the task or competency occurrence on the job. In addition to this quasi-weighting procedure, analysis teams attempt to target cognitive levels using Bloom's Taxonomy.¹⁰ As a result, process teams ultimately formulate course and curriculum blueprints by attending to the three variables (competency definition, weighing, and cognitive levels-of-learning). In an effort to avoid creating that which may already exist, a parallel task is to review already existing courses for degree of match with job and task analysis, potential gaps, and duplications. This effort serves to determine whether curriculum design or redesign makes the best sense to meet the training/education requirements of the workforce.

Deciding on your workforce learning requirement is a function of having done thorough needs assessment, where we define and analyze the problem and determine if attending a course is the right solution. If course development is the right solution, then the size of the requirement is initially estimated. This preliminary estimate is continuously refined but serves as the basis for projecting our future need for education and learning. Actual participant selection is based on meeting qualifying standards as determined by taking a diagnostic (see Implementation Phase). The decision to send a participant is a responsibility of the component organization senior education and learning managers in which class quotas¹¹ are established across National Security Community agencies and coordinated by the NIU.

FEEDBACK LOOP TWO: Design.

Once the determination phase is completed, the more fundamental questions pertaining to actual curriculum can be addressed. Essential questions to be answered include:

- Who is to design?
- Who is to sponsor?
- Who is to teach?

Determination of who will design the curriculum will be based on at least two interrelated capabilities: (1) subject matter expertise and (2) ISD expertise. Course designers are usually not as skilled in ISD, particularly as to CBE. The NIU's concept of a design team is to use the NIU contractor supported by, where necessary, subject-matter experts and schoolhouse professionals from the National Security Community agencies.

⁹ Refer to: Hawkins, R.L. Job Task Analysis For Training. Navy Acquisition Management Training Office, Norfolk, VA, June, 1993.

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¹¹ Currently the Defense Acquisition University uses the Army Training Requirements and Resources System (ATRRS) to manage its quota system.

Within the program, the question of sponsorship of any NIU course is based on the best-in class National Security Community contractor used for design by the specific Ring of Representative responsible who championed the course. Course designer are defined as any entity charged with the development of specific course(s) and courseware products (e.g., student guides, instructor guides, tests and other assessment devices).

Deciding on who is to teach may not, and perhaps should not, involve the same personnel as those selected for design. As in design, teaching normally requires some form of a faculty certification program. Such a program would typically be supported by (1) a teaching fundamentals course and (2) a series of courses that emphasize CBE strategies, facilitation, and state-of-the-art teaching methods in interactive and accelerated learning techniques, and brain compatible learning patterns.¹²

FEEDBACK LOOP THREE: Implementation.

Once a course is fully developed, it can be implemented. During the implementation phase, course validity and target audiences (who will attend) are critical elements. Each National Security Community NIU course is subject to pilot offerings and validation of all aspects of the design process. Separate from the NIU contractor's own quality control/quality assurance program, an independent curricula review team (from the Ring of Representatives), along with participant feedback insure continuous quality. Once validated, a course is presented for institutionalization.¹³ Even after institutionalization, courses undergo continuous modification and improvement.

Determination of the target audience can be difficult. To better ascertain the requirements for potential students, the NIU uses a combination of elements. Initially, student identification requirements are derived from the National Security Community agencies and use of a COTs Learning Management System (LMS). Until a course is institutionalized, such projections are considered provisional.

Moreover, the NIU provides for the development of diagnostic instruments to assist prospective students in gaining an understanding of their level of requisite "knowledge" prior to enrolling in a course. This serves the prospective student in determining whether a course will meet his or her professional development needs. The Center for Organizational/Personal Assessment and Attribute Evaluation serves this purpose. If the diagnostic does provide benefit by alerting the student to not attend a course when he or she should not, then valuable limited resources are saved. Diagnostics also have the potential to indicate if any remedial action (e.g., in the use of statistics) may be needed for a prospective student or developing other prerequisite skill building activities prior to actual participation in a course.

A notable by-product of using diagnostic instruments is the determining of whether or not likely course participants can qualify for equivalency. By using diagnostic instruments, a student can demonstrate pre-existing mastery of a particular course's learning competencies and tasks, thereby offsetting the need to take the course. The NIU will be working towards connecting these elements during the implementation phase.

¹² Brain compatible learning involves the human brains capacity and desire to have things presented in a nonlinear fashion and formatted as learning patterns made up of interconnected clusters and decision trees without unnecessary conditions of stress, anxiety or fear being introduced. Refer to: Hart, Leslie A., Human Brain and Human Learning, Books of Educators, White Plains, NY, 1983.

¹³ Eliminations of similar courses should be empowered to NSC agencies since the "market" will determine what is best; if NIU "joint" courses are truly "value added", the other courses will eliminate themselves - dollars will be spent wisely.

FEEDBACK LOOP FOUR: Maintenance.

During the maintenance phase, evaluation strategies, as well as career tracking and a referral system, are essential. The NIU anticipates the development and implementation of a systematic evaluation plan designed to provide measures of course and faculty effectiveness using a COTs People Development Enterprise Solution. As illustrated in the chart on ISD, evaluation involves all parts of the ISD process. Evaluation procedures are interconnected throughout the ISD process and deal with all elements of competency-based design features. Terminal and enabling objectives initially are weighted against performance standards and level of learning indicators established by the functional curricula design team. Learning methods and student assessment techniques are evaluated in terms of applied validity and reliability indicators.

Specifically, the credibility of courses and the quality of teaching will be dependent on maintaining the integrity of the certification of the previously alluded to course designers, course instructors, and train-the-trainer programs. Poor design and poor instruction are unlikely outcomes if certification is given top priority. Best-in-class evaluation programs minimize problems prior to their occurrence. Concerted efforts of maintaining continuous improvement through re-certification every other year will contribute further to establishing a high level of professionalism.

Requiring documented constructive feedback by the participant and by a quality assurance team about instructors and courses add extra polish to an already quality evaluation program. Feedback without certification would lead to late corrections, leaving the possibility for dissatisfied customers and not necessarily better future performance. It is important to recognize that both feedback and certification must be present to have an effective evaluation.

Performance mastery is a critical end goal of CBE. While it is important to measure performance periodically throughout the course as well as at the end of the course and make sure the evaluation is linked to the prescribed terminal and enabling objectives, it is essential that some form of follow-up evaluation exist to insure learned performance is supported, reinforced, and accomplished once back at the job, i.e., job transfer. A major effort for the NIU is to institute innovative approaches at measuring performance mastery back on the job (e.g., introducing job aids and supervisory feedback guides as well as instituting value contributing metrics).

Individual students need to know that they will get support once they have received their core learning experience. The NIU intends to have a comprehensive follow-up continuing education program. A series of follow-on courses to refresh and maintain subject-matter expertise will be established.

Once job transfer evaluation is well-grounded and continuing education courses are in place, a bottom-line evaluation, i.e., a cost to benefit evaluation program, needs to be established. This bottom-line evaluation (while the most difficult of all evaluations to execute) will be the proof that organizational improvements are a function of the success of education and learning experience.

Another area of concern for the NIU during the maintenance phase is the effectiveness of the career tracking and personnel referral system. It is anticipated that a fully operational system would include vehicles for real-time diagnostics, planning, selecting, recording, and evaluating National Security Community. For successful tracking the NIU would require access to an automated, integrated career referral and tracking system that is responsive to the National Security Community analysis workforce. An example, would the recently DHS-developed MAXhr human capital system.

In relation to the referral and tracking systems, the DNI should be moving forward with discussions about the implementation of an student incentive program. Various possibilities exist, such as mandatory certification,¹⁴ less rigid certification or qualification programs and personal recognition. The probability is that initially some combination of the latter two will evolve as NIU's method of choice. As the incentive program matures, the likelihood is that analysis personnel will be involved in a mandatory certification program with subsequent requirements for continuing professional education.

Summary

In this white paper we have added more detail from previous papers that described the program in more strategic terms. Here we have described more of the "how" we can develop, field, and maintain a full service virtual distance learning program. The NIU consortium stands ready to answer any additional questions you may have on our methodologies and processes.

About the Author

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¹⁴ The Defense Acquisition University by law is required to have a mandatory certification requirement.