

Training Needs Assessment Report

NGA National Geospatial Intelligence College

1 December 2003

Executive Overview

In 1996, the Training Division of the former National Photographic Interpretation Center (NPIC) engaged NPIC imagery offices in a review of the old National Imagery Analysis Course (NIAC). The Training Division (and its successor National Imagery Analysis School of the newly created NGA) used the resulting *Statement of Need* to revitalize the NIAC course in advance of renewed imagery analyst hiring. The updated NIAC retained its basic structure, but added analytical exercises, imagery from multiple sensor systems, more “rest of world” content, NDS (the NES predecessor system) in the classroom, and a wealth of real-world stories that provided valuable job context to new students.

For a variety of reasons - including instructor turnover, tempo of operations, insufficient documentation and standardization of course content, and a lack of a formal configuration management process - over the ensuing years there was gradual change, and in many areas degradation of the course materials. Analytical exercises were eliminated, critical job aids (such as inclusive and extensive equipment keys) were deleted from the materials, and review and upkeep course content was inconsistent (resulting in outdated subjects, like the SA-4 SAM system, being kept in the course).

During this time the demographics of NGA were also changing, with ramifications on our basic training programs. The organization was becoming “younger” as new IAs hiring continued and many former NPIC and DIA analysts retired. By the late 90’s, many of the senior IAs who for years had mentored a generation of junior analysts had left the Agency. As a result, recent NIAC graduates do not have the wealth of experienced analysts to help them relate learning in the NIAC to the reality of their day-to-day jobs.

Three years ago, in preparation to transition to a soft-copy training environment, NIAS embarked on an effort to document the existing content of the NIAC. This effort was known as the “NIAC modernization.” To achieve the modernization, NIAS created a curriculum development team, the Training Resource Center (TRC). This team included instructional designers, multimedia artists, and publications specialists. The modernization effort resulted in an inventory of course content, emphasis, and activities.



The collaboration between NIAS management, NIAS instructors, professional curriculum developers, and supporting TRC staff led to a number of suggestions for improving the content

and efficiency of the course. NIAS implemented many of these suggestions in the modernization effort, while delaying other ideas for improvement until more time and resources were available.

While NIAS focused on modernizing the NIAC, other NGC offices were building and delivering the new Geospatial Analyst Training Program (GATP). This new course was intended as the entry-level GA analog to the NIAC. It provided students with overviews the NGA intelligence and geospatial missions, understanding of GA data and products, and operation of geospatial tools and software. As the GATP evolved, NIAC content was added to gives students a better appreciation of the Agency's imagery mission (this included sensors and basis imagery exploitation, OB overviews, and writing & briefing). During its three years of operation, the GATP curriculum underwent near constant change, reflecting the unsteady and still evolving GA role and tradecraft in the Agency.

In the summer of 2002, two members of Training & Doctrine participated in the NETIPT. As the transformation initiative gained shape and momentum, NGA NGC elected to serve as a change agent for transformation by combining the entry-level courses of Imagery Analysts and Geospatial Analysts. The goal of this course, known as the Geospatial Intelligence Training Program (GITP), is to provide IAs and GAs with a common language and understanding of NGA and its mission in order to effect positive and productive collaborative work relationships.

Also in response to the NETIPT, Training & Doctrine established the Transformation Assurance Team (TAT) to assure that all curriculum development and instructional efforts reflected the director's precepts for transformation. The members of the TAT included experts in imagery analysis, geospatial analysis, instructional design, and instructional technology.

One of the first courses subject to TAT review was the GITP. The TAT reviewed the requirements driving the development of the GITP, the design plans for the GITP, final products developed according to the design plans, and the evaluative data gathered upon execution of the GITP pilot. (The evaluative plan for GITP expanded on that of the old NIAC. Data gathered during the GITP Pilot included auditors' notes, specific student survey's, Kirkpatrick Level One surveys, student performance rubrics, exercise and exam scores, and test item trending.)

Throughout its review, the TAT recommended and documented a number of actions (to be addressed quickly per defined schedules) and liens (requests for long term plans to result in significant improvements). The evaluative data gathered during the execution of the course buttressed many of the TAT recommendations during the design and development reviews. The P auditors' comments were particularly valuable, as the comments pointed out the specific

gaps between what was currently being taught in the course and the specific requirements of the workforce.

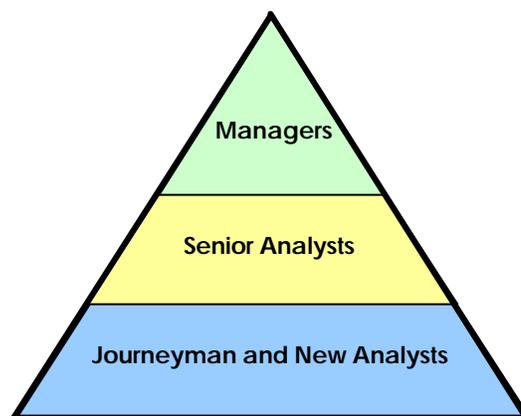
NGC derived a number of implications from the wealth of data gathered during the NIAC modernization, the GITP development effort, and the GITP Pilot. The data clearly demonstrated that the current state of NGA's entry-level analyst training was not aligned with the skills & knowledge requirements of new analysts, nor with the changing realities of the P work environment. By extension, our training program was not effectively meeting the workforce's requirements.

Before making significant changes in our long-standing curriculum, NGC wanted to conduct a needs assessment with P that focused on entry-level imagery and geospatial training. This focused needs assessment would ensure that any changes to the documented course materials or the instructional approach would achieve the results desired by the customer – new analysts that perform more effectively in the NGA P work environment.

Needs Assessment Methodology

The foundational inquiry of the needs assessment was to identify what knowledge and skills IAs and GAs need to operate effectively in the P work environment. Comparing these needs with our current entry-level curriculum, NGC could redesign its training programs to maximize their value and relevance to P. Our goal was to produce graduates, who are more knowledgeable, capable, engaged, and prepared to work more effectively right from the first day on the job. In order to understand most directly the needs of the workforce, the training needs assessment was focused at the operational level of P analytical offices. Our approach was hierarchical, beginning with groups of recent graduates and journeymen, then moving up through interviews with senior analysts and managers (Branch and Division).

In order to increase the validity and reliability of the results of the focused training needs assessment (TNA), NGC used several techniques to collect and analyze data about geospatial intelligence training requirements. These techniques included focus groups, interviews, surveys, site visits, and observation. NGC conducted training needs assessment activities at a number of locations, including the Washington Navy Yard, St. Louis, Bethesda, Reston, and US CENTCOM to allow for maximum sampling of the target population. By using multiple interventions, instruments, and locations to gather data, NGC alleviated any inherent weaknesses of each if used alone.



This process is known as data triangulation. NGC categorized the each group or type of stakeholder for the GITP. The identified groups / stakeholders included division chiefs, branch chiefs, supervisors, and subject matter experts (essentially the end-users of NGC's program graduates), along with recent graduates from the entry-level training programs.

NGC triangulated the data by looking for outcomes that were agreed upon by all stakeholder groups. The weight of evidence suggests that if every stakeholder, who is looking at the issue from different points of view, identifies a gap in the training program, it is more than likely to be a true gap.

The remainder of this section details how NGC implemented each data collection method.

Focus Groups

The use of focus groups allowed assessors to document group consensus about shortcomings in entry-level geospatial intelligence training and served as the basis for the design and development of the survey data collection instrument. NGC provided current IA/GA's with an open forum to discuss training issues. As a result, the participants aired many important facts/ideas in a synergistic environment that led to deeper insight into training gaps that may have otherwise gone unnoticed.

The focus group audience consisted primarily of recent graduates from the NIAC and GATP entry-level analyst training programs. However, some focus groups included aeronautical analysts, regional analysts, and geodetic scientists. One focus group that had been planned for journeyman analysts actually consisted of senior IAs and managers. While NGC had planned individual interviews, this focus group session proved particularly valuable, as the feedback received from the senior analysts was consistent with the feedback received from other populations, lending weight to the data triangulation methodology.

In order to maintain consistency in conducting the focus groups, NGC prepared a list of standard, open-ended questions to guide the group discussion(s). These questions allowed for comparison and trending of the feedback results while providing the flexibility to explore the each groups' issues/concerns in greater detail. An example of the focus group discussion guide appears in the appendix of this report.

Ultimately, NGC conducted seven focus groups with over 45 participants. The focus group results served to define the topics for additional training needs assessment instruments, specifically the interview guide and the online survey.

Interviews

NGC conducted individual interviews with subject matter experts, mentors, supervisors, branch chiefs, and division chiefs. Given the value of this population's input and the rapid pace of NGA P operations, NGC determined that individual interviews would most efficiently gather data at the analysts' convenience.

To ensure consistency, NGC developed a standard interview questionnaire. The focus group discussions provided data that helped to define the topics included in the standard

questionnaire. While each interview addressed the standard topics, participants could elaborate on any issues they perceived as important.

Survey

NGC designed the focus groups and interviews to reach a broad and representative population of P. Obviously, we couldn't talk to everybody, but to get wider input from the workforce, NGC developed a survey to collect critical data from a larger sampling of the target population.

The focus groups provided great insight into the design of the survey. The survey variables focus on specific issues while at the same time allowing the flexibility of respondents to provide individualized, qualitative comments about entry-level geospatial intelligence training. The survey, combined with the other TNA instruments and interventions, will enable NGC to effectively triangulate the results of the assessment.

NGC developed this instrument as a hardcopy survey first, then validated the content and functionality through beta testing with members of the target population. Ultimately, NGC developed an on-line survey (administered via JWICs) using point and click technology and automatic data storage/retrieval.

To distribute the survey, NGC relied upon Dave Collar and Paul Rabatin – the IA and GA PAB Managers, respectively. Dave and Paul distributed the website and initial instructions to a random sampling of IAs and GAs. Furthermore, NGC contacted all of the training needs assessment participants with the website and instructions to provide them with an opportunity to document their specific feedback on tasks, systems, and equipment.

The survey consists of a main form (which applies to all respondents) and up to six follow-on forms, available depending on the respondent's area(s) of expertise. The main form consists of four parts: 1) Demographics, 2) Task Analysis, 3) Skills and Knowledge Gap Analysis and 4) System/Tool/Application Analysis.

The "Demographics" section request information from the respondent as a basis for determining the relationship of the sample to the target population.

The "Task Analysis" section lists various tasks/knowledge areas that the focus groups and interviews identified as being the most important to IA/GAs. This section requests that respondents rate each task (on a five-point Likert scale) on three dimensions:

- 1) the importance of the task

- 2) the difficulty of performing the task
- 3) how frequently the task of performed.

In addition, respondents have the flexibility to provide additional tasks that they deem to be most important to IA/GAs.

The "Skill/Knowledge Gap Analysis" section presents the same list of tasks presented in the "Task Analysis" section and requests that the respondent rate how well entry-level analysts perform these tasks or how knowledgeable they are in the subject matter. The survey uses the same 5-point Likert scale to document responses to these questions, which will allow NGC to conduct a gap analysis between task importance and task proficiency.

Finally, the "System/Tool/Application Analysis" section requests that the respondent rate NGA software tools, systems, etc. on the same three dimensions mentioned earlier for the task analysis.

There are up to six follow-on forms available, depending on the respondents' area(s) of expertise. These forms consist of equipment listings of the ground, air, naval, air defense, C4I, and missile order of battle blocks that are currently part of the entry-level IA/GA training curriculum. These forms request that the respondent rate each piece of equipment on three dimensions to include:

- 1) how important the piece of equipment is [i.e. capabilities, tactical/strategic significance]
- 2) how difficult it is to identify the piece of equipment
- 3) how frequently the piece of equipment is observed.

The data collected from the online survey will assist NGC in tailoring training to those pieces of equipment of most significance to the analyst.

An unclassified hardcopy version of this survey can be found in the appendix of this report.

Site Visits

NGC also wanted to understand work processes and potential training needs at analysts outside the mainstream P work environment. NGC teams conducted site visits with NGA Support Teams at CENTCOM and National Security Agency. We suspected that analysts' job knowledge and skills would be different at these organizations, and that we might also document new & inventive work practices that could improve the value of our training programs for the general workforce. When visiting the NST at CENTCOM, NGC representative had the opportunity to

conduct a number of interviews with CENTCOM NST personnel. The results of those interviews are included later in this report.

When visiting the NSA NST, NGC representative attended a series of informative briefings that provided valuable insight into the effective collaboration of IAs and GAs. Specifically, NGC representatives took this opportunity to benchmark the “best practices” of the NSA NST. Furthermore, NGC representatives had the opportunity to sit with an analyst as he demonstrated how he would collaborate with his GA counterparts to resolve an intelligence problem. This data will prove invaluable to future curriculum development efforts.

Observation

The final needs assessment intervention used to collect data for this report was observation. As this is the most expensive and time-consuming method of collecting data, its use was limited. A NGC representative spent a half a day shadowing an experienced imagery analyst, documenting frequently performed tasks, critical tools, sensor mix, and workflow. The same NGC representative spent a half a day with a recent NIAC graduate, documenting the same general information.

Given that NGC’s observation interventions are limited (at this time) to imagery analysts, the data gathered during that activity cannot be considered as part of this summary report. In the future, NGC plans to shadow geospatial analysts and collaborative teams of IAs and GAs in order to capture data critical to the effective development of curriculum.

Summary of Results

Focus Group Findings

To establish a baseline for the training needs assessment, NGC hosted a number of focus groups with recent graduates of NGC entry-level courses (formerly NIAC and GATP). This information in turn drove many of the topics that were discussed with subject matter experts & managers in the interview phase of the training needs analysis. This document summarizes the results of the focus group sessions.

These focus groups provided some of the most valuable and interesting information gained during the needs assessment. Participants were thoughtful in their comments, and most were very open in sharing views and suggestions on their entry courses. Participants' fresh recollections of their training experiences, and their ongoing learning and assimilation into the work environment gave special insights into how NGC's basic courses (and current curriculum) prepared graduates for work in P.

Demographics of the focus group participants:

Most were IAs trained in the former NIAC. Their insights remain highly relevant, since NGC retained most of the NIAC content in the current GATP. Focus groups included IAs from Bethesda, St. Louis and WNY.

The focus groups also included GATP graduates from these three locations. Most were practicing GAs.

St. Louis focus groups included Aeronautical Analysts, Regional Analysts and at least one Geodesist. These participants were open and engaged, and wanted to find ways to work productively with their IA and GA counterparts. The interviews revealed that these groups have special training needs outside the ongoing GATP. NGC plans to pursue this via a separate needs analysis.

Note that in addition to the planned meetings with recent graduates, we also held a focus group with a mix of senior analysts and branch and deputy division chiefs on 11 August. This meeting was outside the intended focus group audience (a scheduling miscommunication for some participants, and an opportunity to vent over the infamous "Fish Course" briefing for others), but resulted in some very useful information and contacts for subsequent interviews.

The following individuals attended NGC focus groups

Tom Barilla	Sarah Batty	Ron Bersett	Terry Buysse
David Cain	Rocco D'Ambrosi	Marissa Downs	Gino Farrara
Edith Hwang	Martha Morgan	Vivek Narayanan	Wendy Orsolini
Robert Precht	Richard Sacco	Paula Shorten	Linda Tate
Kate White	Woody Willson	Jim Worden	Mark Pietrzyk
Dee Hunsucker	Ed Young	Shari Baker	Dave Sullivan
Sue Griggs	Steve Blohm	Glenn Turner	David Kapuscinski
Lawrence McNamara	Dave Collar	Bob Crosby	Steve Zolnerowich
Jim Bates	Mark Vanlandingham		

The topics of these focus groups included, but were not limited to:

- ~~///~~ If you could change one element of the NIAC or GATP, what would that be?
- ~~///~~ Was the sequence of blocks and instructional content appropriate? Which blocks have been most valuable to you since starting work?
- ~~///~~ Did the NIAC or GATP prepare you for your job?
- ~~///~~ What did you like most/least about the instructional approach in the course? Did the course provide you with sufficient time to practice identification and analytical skills? What portion of the course was most difficult for you?
- ~~///~~ Was the length of the NIAC/GATP appropriate? Did you need more/less time to understand the lessons?
- ~~///~~ What NGA P tools / databases / libraries do you use daily/weekly? How important are these tools to your job performance?
- ~~///~~ What other references or resources do you rely on to perform successfully in your job? Describe the role of your mentor in the development of your knowledge and skills.
- ~~///~~ How often do you write reports or give briefings to communicate the results of your analysis? Who is the usual audience? Did the entry-level training you received prepare you adequately for your writing and briefing duties?
- ~~///~~ How often do you work in teams to conduct and communicate your analysis? Do these teams function effectively? What collaborative tools do you use at work? Are they used effectively?
- ~~///~~ Now that you've been on the job, what skills and knowledge do you believe will help continue your professional development?

Focus group results

We've organized the responses to these questions as shown in the table below. For simplicity & readability, the tables present consolidated responses from all the focus groups. Comments from the 11 August session with SMEs and managers are included, and are also presented in a separate table following this section.

Topic

Response Summary

In most cases, the information gathered for each question was similar from group to group. This section summarizes the majority of participant responses.

Specific Comments

Some participants offered specific comments concerning a topic or question. This section highlights those specific comments.

Differing Points of View

Some participants expressed points of view that differed from the majority. This section includes those differing points of view.

If you could change one element of the NIAC or GATP, what would that be?

Response Summary

The IAs offered most of the opinions on this question. There were two consistently dominate views: 1) NIAC content was too focused on object identification, and 2) the course should instead better prepare students “how to work” in the real P environment. Other hot topics were imagery content (more sensor diversity) and adding NSGI systems in the classes.

Specific Comments

Imagery Lessons

Almost all IAs in the groups said the NIAC focused too heavily on equipment identification (ID).

A number of IAs suggested teaching a general imagery ID methodology (the “WEFT” model in Air was cited as an example) and effective use of keys, rather than recall and ID of numerous specific pieces of equipment. Participants believed that this would be more representative of actual IA work. One IA suggested replacing some ID content with reference aids that could be taken back to the job

Most of the IAs recommended adding analytical exercises. These were generally described as short and simple exercises, worked independently or in teams, and spaced throughout the course or blocks. The participants believed that this would be more representative of the real P environment, and add variety and interest to the course.

Most IAs wanted more real work relevance & context in the imagery lessons. Many imagery ID lessons and exercises gave no “real world” context as to their importance and relevance to NGA P missions. Several IAs noted that there was “a lot of PI” but not much time on issues and context of what’s going on in a scene. One said there was “way too much PI” and that we should focus on “why are we learning” a particular subject. (One example cited was that students learn to know what model tank is at a garrison, but not how to judge what it’s doing, or if it’s important).

Most IAs (and GAs) stressed that learning imagery ID skills was important, but that the NIAC should also teach basic IA work processes and how to do them. Most IAs (and several GAs and RAs) basically said the course should teach more “process flow” (i.e., how basic work is actually accomplished in P), and should “simulate” work processes. Imagery collection was often cited as an important job component that was under-represented in NIAC & GATP.

Imagery Sensor Examples

Most of the IAs said the course had far too little non-EO imagery. NGC should add other imagery sensors into the lesson, especially radar.

Most IAs said that the non-EO image examples should be integrated into the course blocks. Exploitation of the imagery should be done in the context of realistic subjects and issues.

The blocks should begin with good quality images to help build identification skills, then move to lower quality (“real world”) imagery examples to prepare students for the job.

The majority of IAs said that the course needed more current imagery, over a wider range of regions.

Addition of NSGI systems

All the IAs and GAs recommended adding real NSGI systems and live databases to the courses.

Majorities of IAs in all groups said that NES and/or other NSGI systems should be integrated into

the daily lessons of the course. Most favored the use of "live" systems for research exercises. Overall, most participants wanted the systems to be used in a realistic way (research, data base entries) to better prepare graduates for the job.

GAs had NSGI software in the GATP, but recommended access to live geospatial systems and data in the course.

A number of IAs and some GAs recommended adding tools (such as Intelink) for collateral research.

Most of the GAs complained that systems and software used in the course were not like those encountered on the job (they cited a wide variety of tools, with no real standard). The course should try to teach to the most commonly deployed systems, or at least to a general (if not universal) standard of GA tools.

The GAs also said that software functionality as taught in the GATP did not match real job requirements. They said that the course taught all functions, rather than focusing on functions used most frequently on the job.

Other topics

Several IAs in one group said they believed NGC is not serious about feedback on the course. They said this impression is widespread in P.

Differing Points of View

There was consistent & general agreement (ranging from polite consensus to unanimous & adamant support) on these issues. Dissenting or differing views are noted in the more detailed discussions that follow.

Was the sequence of blocks and instruction content appropriate? Which blocks have been most valuable to you since starting work?

Response Summary

Participants generally agreed that the basic organization and flow of NIAC and GATP were appropriate. Most believed that the content of some blocks was dated or arcane, and there was consensus that the course lessons need to use up-to-date examples.

Specific Comments

Sequence of blocks

This issue did not spark much discussion in the focus groups. Most participants (IAs and GAs) generally supported the structure and sequence of the NIAC & GATP lessons.

Most IAs liked the progression of blocks (from “large to small” subjects).

Instruction content

Again, the large majority of IAs agreed that the NIAC focused too heavily on individual equipment ID. Many of the IAs liked the “WEFT” methodology approach to identification in Air. Some recalled that Ground used a similar “WHAT” approach (apparently not used as consistently or effectively as in Air; many IAs recalled being swamped by the large amount of rote equipment ID in Ground).

Many IAs said the NIAC blocks had long lectures and instructor-led drills. They would like more opportunities for self-learning and practice.

Related to this, most IAs said that we should add analysis content and exercises to the course blocks. Several suggested a simple exercise of asking students “what’s going on” at a target or area.

Almost every IA group member cited examples of dated or overly obscure content in the major NIAC blocks (e.g., 2 hours lesson on the SA-1 SAM, identification of rare ships, etc.)

Most IAs said the NIAC needed more current ROW content.

In the focus group with SMEs and managers, there was concern that lesson content was not fully documented (e.g., no lesson plans in some blocks). There was general agreement with NGC’s plans to build a curriculum configuration control process (changes to curriculum must be known and documented).

Several IAs in one group had completed NGC’s Military Analysis Course, and liked its open, seminar environment. They saw value in this format for the NIAC.

Some participants in the SME and manager focus group were alarmed that analytical and other content had been removed (undocumented) from the NIAC over time. (For example, there are no deployed forces lessons in the 3-week ground block).

Most valuable (and less so) blocks

There was no consensus on what were the most valuable NIAC blocks. Most frequently mentioned as the better and more valuable blocks: Fundamentals, Air, Missiles, Industries and C4I.

A number of IAs applauded the Industries block as a model for the course. They liked the block’s mix of lecture, identification, analysis, and group & self-paced activities.

Almost all the IAs said that the Ground block is too long & tedious (too much equipment ID and

memorization). Several suggested that we divide it into two blocks (perhaps with some regional examples).

Most IAs liked the NIAC field trips. They were interesting, educational and added perspective to object identification skills.

Many (perhaps a majority) of the IAs said the one-day blocks (BDA, Civil Apps) were not intrinsically useful, but offer short respites between the heavy identification (ID) focus of the long OB blocks. Some complained about the quality of instruction in some short blocks (these are taught by visiting P staff, and substitutions are frequent).

Several students did not like the Capstone exercise (they were in one of the earliest runnings). They said it was chaotic, overly transparent and not representative of "real world" work practices. Their major observations:

- ✍ Briefings were unfocused and too unrealistic senior officials (e.g., the Secretary of State).
- ✍ The Capstone facilitators and visitors did not coordinate activities and comments. This led to duplication of effort by the teams.
- ✍ The collection aspects of the event were unplanned and simplistic.
- ✍ They offered little learning relevance. Some instructors overplayed their roles and authority. This soured student initiative and engagement.

Differing Points of View

Several IAs worked regional issues, and would like to see more regional flavor in the blocks. They commented that the bulk of the course had a Warsaw Pact emphasis.

One SME suggested that the entire course could be modularized and offered as stand-alone blocks. A common introductory block (or package) would be required.

Several IAs in St. Louis believed the general focus on equipment ID in the NIAC was appropriate, and that analysis skills should be taught in follow-on courses. Some of their concern was that additional analytical content would unduly lengthen the course.

Did the NIAC or GATP prepare you for your job?

Response Summary

The general response to this question from across all the groups was “not really.” IAs and GAs said the training provided lots of information and new skills, but did not effectively prepare graduates for how this learning will be applied in the real workplace. Many participants (especially the IAs) commented on feeling “lost” on the job (a number still do, even after 1+ yrs).

The consensus was that the basic course should better prepare graduates *how to do* the real tasks of the job. Related to this, most participants wished the courses had presented information on NGA tools, intelligence issues, products, and customers – the context and environment in which we work. Participants had broad topical knowledge (the components of an SA-2 site), but too little insight into how to apply it (when/why/how do you write a remark on activity at the site?). Research skills were also a popular topic.

Again, many of the discussions with IA participants addressed the lack of simple analytical content in the course. Entering the job they felt unsure about doing simple assessments of activity (for example, ground support & weapons handling activity is not covered in Air), or when activity rose to a level of significance to warrant reporting or other action.

Specific Comments

Most participants wanted more “process flow” content in the courses. For example, use exercises and lectures to show how and why imagery is collected, how it’s effectively exploited, what products should be generated, and how customers use the products (issues in the context of the intelligence cycle). Particular NGA P tools, processes and procedures should be stressed.

All the IA participants were aware of the lack of consistent & effective mentoring, both before and after the course. The majority of IAs characterized their mentoring experience as insufficient. Key shortfalls cited where: mentors who are overtaxed and unavailable; being shuffled between multiple mentors; mentors who are too junior and inexperienced; and no consistent mentoring standard from branch to branch.

IAs in several of the groups suggested that P and NGC offer opportunity for self-study before the NIAC. This would give new employees focus, augment mentoring, and prepare them for the opening lessons of the course.

IAs and GAs both would like information in the course on the mission of P offices.

Several IAs suggested that classes visit local customer and NGA sites during the course. This would help students understand our operations and how we support the community.

The GAs said that they know how to make products, but would like to better understand research for data, and how to send it to various NGA and customer locations (connectivity knowledge).

The GAs also said they would like to have more “issue context” knowledge when performing their work (the “why”), and training in how to improve joint IA-GA operations.

Majorities in all groups said that the course should teach basic research skills, and where/how to find collateral materials. Research tools (like WebSafe or Intelink) should be added to the classroom, and integrated into new analytical exercises in each block.

Some IA participants noted a lack of confidence among new IAs on the job. This ranges from basic identification to understanding of work processes. Related, some suggested that we instill a sense of curiosity and imagination in the students.

One member suggested that recent graduates have lunch with the classes to talk about the transition from class to work, and lessons learned.

Differing Points of View

None.

What did you like most/least about the instructional approach in the course? Did the course provide you with sufficient time to practice identification and analytical skills? What portion of the course was most difficult for you?

Response Summary

Nearly all the IA participants said (in varying degree) that there was too much basic identification in the course. As noted in the preceding sections, most would like to see more analysis, individual/team exercises, and realistic context. Related, a number of the IAs thought the NIAC lectures were too basic and prolonged.

A number of other issues were raised in these discussions, including the use of light tables.

Specific Comments

Imagery Skills

Most IAs agreed that graduates must have solid imagery identification skills. Classroom practice was an important component in learning these skills.

As in preceding sections, the large majority of IAs said the NIAC had too much equipment ID. Many IAs liked the "WEFT" model of Air, which teaches basic identification methodology v. individual equipment model memorization. They believed the WEFT approach was more engaging and efficient, and was more like real ID work done on the job.

Related, most IAs thought that most NIAC blocks taught too many pieces of equipment. Ground was consistently criticized in this regard.

Most IAs also said that the blocks should offer simple analytical exercises (Industries and Missiles were singled-out for successfully doing this). These participants said that exercises could introduce students to how work is done in P, build basic analysis skills, and energize the training day. Many of the IAs thought that the ID lessons took time away from simple analytical exercises.

Many IAs complained that NIAC lectures were overly long and amounted to "spoon feeding." They wanted to jump-in and practice after shorter lectures.

Most participants liked variation in the daily routine (they cited instructor Bill Reynold's simple use of flash cards). They found this refreshing and engaging.

Both IA and GA participants gave most instructors good marks for subject knowledge and willingness to help students.

Several IAs and GAs commented that we should teach a hierarchy in imagery skills (ID through analysis).

Most of the IAs agreed that we should teach things in context (not just ID and counting of planes at an airfield, but investigate what the planes are doing, what relevant activity is going on in the scene or in surrounding areas, and what does it mean?). The "who cares" test.

Related, several of the SMEs stressed that we teach things in an integrated "systems" context wherever appropriate.

Search and related issues

~~✍~~ A number of IAs said that the search lessons and exercises in the NIAC were weak and insufficient. Search should be integrated into many of the blocks.

~~✍~~ Some of the IAs stressed that the NIAC had too much "tunnel vision" (fixed targets); students need to see the "bigger picture" of things around and affecting the target.

Majorities of IAs in two of the groups said the NIAC should include information of cultural features, terrain, etc. Students would learn how to distinguish these features, and their potential relevance to intelligence issues.

Many IAs said that the each NIAC block should contain D&D lessons. These should be highlighted by “real-world” anecdotes.

Hardcopy & softcopy

Most IAs agreed the course should be taught in softcopy. But a majority cautioned that we should continue to offer light table exercises (since many in P continue to use light table for daily work or important tasks, like hardcopy research and search).

Several IAs said we should continue to teach at least some lessons in hardcopy. Search and image research were mentioned as critical topics in this regard.

Several IAs said we should teach students how to use U-2 imagery.

Other issues

The GAs were generally satisfied with the instructional approach of the GATP.

Many IAs would like time for more teamwork and interaction in the NIAC.

The majority of participants supported opportunities for self-study, including exercises and computer-based learning (to include image identification lessons). NGC should offer a study lab or library for these activities.

A number of IAs and GAs suggested adding imagery collection exercises in the blocks.

Several participants asked for opportunities to practice research techniques for multi-source information, including hands-on work on WebSafe and other research tools.

Students liked instructors who could relate real job experiences and anecdotal accounts. Ideally, the instructor should have worked the issue he/she is teaching.

Differing Points of View

None.

Was the length of the NIAC/GATP appropriate? Did you need more/less time to understand the lessons?

Response Summary

Most said the NIAC was long, but that this was justified given the range of content covered (granted, a circular position). There was general ambivalence about what could reasonably be eliminated from the course. GAs split opinions on the GATP length.

Specific Comments

Some IAs suggested cutting ID content from the NIAC. Opinions varied as to what lessons or blocks could be eliminated (not surprisingly, perspectives varied depending on assigned accounts).

A number of the IAs said that many NIAC training days ended at 2:00 pm. They joked that instructors and students called this the "magic hour." The course length could be compressed if training days were longer.

This led some to warn of student burnout. Several IAs suggested adding exercises after lunch to "spice up" the lessons and keep students interested.

Some GAs felt the GATP was too long, and should be taught in segments. In addition, the course should use exercises to reinforce training and make the class more engaging. Other GAs felt the course was "about the right length" given the amount of material covered

Differing Points of View

Again, there was a variety of views on this topic, and no real firm opinions.

Two IAs questioned how we could add analysis and other activities into the course, given its already long length and detailed content.

What NGA P tools / databases / libraries do you use daily/weekly? How important are these tools to your job performance?

Response Summary

For the IAs, NES and research tools (like WebSafe and Intelink) led the list in this discussion. Most participants wanted to see these and other NSGI tools integrated into NIAC, and used in the context of "real job" applications for each block. Most of the IAs don't feel that they were properly trained on NSGI systems.

The GAs complained that many of the systems and software packages used in GATP are not found in the workplace.

Specific Comments

Most IAs wanted to integrate "live" NES systems into the classrooms. These could be used for target and coverage research during exercises. Students could learn not just the basic functionality of NES, but how the system is used on a daily basis in P.

Most could consider the use of NES "simulators" in the class, but this would hamper realism during exercises (especially in doing target research, an often-cited example of a "real job" lesson using NES).

Most IAs wanted collateral research tools (like Intelink) available during the course for exercises.

Most of the GAs suggested teaching ArcGIS at the front of the GATP.

Some participants were unaware that NGC offers post-NIAC NES and other NSGI training. They said this was common throughout P. Those who attended the NGC classes said that the lessons focused on "button pushing" and not real context. There was consensus by participants that currently most NSGI learning is done OJT.

Major tools cited were: NES, IEC & WALA, WebSafe and research sites on Intelink, ISEE, MapInfo, RAS/GNPS (ArcGIS, ArcView), Erdas, TerraExplorer, SOCETSet, Raster Roam, Gateway, AMAA-GR (Arc), IEC (RemoteView, softcopy), Lotus Notes, Netscape/IE, word processing, and PowerPoint.

One member stressed that WebSafe is not intuitive, and needs formal training. The M3 system is easier to use, but not widely deployed.

Several recommended that NGC produce systems job aids (cheat sheets) to assist OJT and daily system operations by analysts.

Basic definition of terms (NILS, CILS, etc.) would be helpful.

The GAs didn't see value in having MOLE training in the GATP.

Differing Points of View

None.

What other references or resources do you rely on to perform successfully in your job? Describe the role of your mentor in the development of your knowledge and skills.

Response Summary

IAs stressed the importance of collateral research and information in their jobs. They recommended that we add training on research and effective use of multi-Int sources in the basic course.

Mentoring hit a nerve with most groups. Mentoring is largely seen as inconsistent and ineffective. A number (if not most) participants said they still felt "lost" on the job, and that they do not fully understand basic work processes.

Specific Comments

Research

IAs and GAs consistently noted that research skills should be taught in the basic courses. This included where to find collateral and multi-Int information, how to weigh its evidentiary value, and how to use it effectively in reporting.

Most participants also said that the courses should provide information on organizations that produce major collateral sources, the relevant technical collection aspects of these sources, and the security policies and classification marking rules governing collateral.

Most IAs and GAs said that research of NGA data holdings was also important. This included target histories, imagery coverage, and data mining via the Gateway, etc. Students should also be aware of data accuracy issues (especially important to the GA participants).

Mentoring for IAs and GAs

Mentoring quality is mixed across P, and varies office to office.

Most said that mentoring is too informal. There's a "luck of the draw" from branch to branch, and some mentors are too junior, busy or unqualified to be effective.

Most IA participants believed that had gained a great range of knowledge in the NIAC, but didn't know how to appropriately apply it on the job. Mentors and OJT were not closing this gap. These participants said that they didn't (and to varying degrees, still don't) know how to apply the knowledge gained in the course to the real job.

Participants in the SME/manager group said that mentoring in St. Louis is especially weak.

GAs typically do not have mentors. Their situation is particular difficult in IA branches or deployments, where they may be the only GA present.

Most IAs and GAs agreed that structured pre-class learning (readings, CBT, etc.) would be helpful, engaging and a good way to prepare for the formal class. Ideally, this activity could be integrated into a formal mentor program.

Differing Points of View

None. There was some variation in the degree and depth of the comments (especially mentoring).

EE All agreed that mentors should be formally assigned to new employees. Several suggested that this be done before the NIAC/GATP.

EE One IA said she had two mentors before the NIAC, and two others afterward. She asked for greater stability in the mentoring program.

How often do you write reports or give briefings to communicate the results of your analysis? Who is the usual audience? Did the entry-level training you received prepare you adequately for your writing and briefing duties?

Response Summary

Most IAs and GAs said new analysts need more and better writing training. Most thought their briefing training was effective.

Specific Comments

Writing

A number of IAs said the two writing sessions (pre-req and in-NIAC) were redundant.

Most all of the IAs liked the idea of having students write realistic reports in NES. One suggested having the students' supervisors review the class products.

Most IAs said the writing exercises need more context and realism. (When do you write a product, and what are the best examples given a general type of issue and audience?). Train in light of how is writing done in the real work environment

Most learn writing OJT. A big challenge was learning the "local" writing styles and rules in each branch/division.

Majorities of both IAs and GAs said they'd like more practice writing the courses.

The IAs saw recurring weaknesses in new employee written products: a lack of clear expository writing skills, inability to write quickly, a need to be accurate and succinct, and ineffective use of evidence to highlight findings or alternatives.

Most IAs felt prepared to brief once on the job. Conversely, most still feel unprepared to write effectively. Major shortfalls were knowing when to write a certain product and what constitutes a good product.

There was significant variation in GA and RA writing & briefing duties. Some did not do much of either; others saw both tasks as growing in importance.

The Aeros would like to have dedicated writing and briefing classes (not 1 or 2 seats per class). Some Aeros have done NIIBs and PIIBs.

Briefing

Most of the IAs and GAs said the briefing training was effective (comments ranged from "adequate" to "good.")

Some IAs and GAs suggested briefing practice using VTCs (a significant issue for St. Louis).

Some IAs suggested more informal briefing opportunities throughout the course.

The majority of participants would like to learn and use PowerPoint in the course to make briefings.

Differing Points of View

Several IAs felt the NIAC briefing training was properly structured and should not be changed.

Not so much a dissent as a related topic, several IAs and GAs suggested that we also teach how to effectively depict information in graphical formats. They see this as an increasingly important aspect of their jobs and the direction of most NGA products & information.

How often do you work in teams to conduct and communicate your analysis? Do these teams function effectively? What collaborative tools do you use at work? Are they used effectively?

Response Summary

There was no real consensus here. Most participants agreed that effective teamwork was an important work skill, but said that the amount of teamwork on the job was really issue or mission-dependent.

There was general agreement that better understanding could enhance teamwork across the occupations (that is, what skills and capabilities each occupation can bring to a task).

Specific Comments

Most IAs and GAs characterized their teamwork activities on the job as informal and case-by-case. Frequency of teamwork ranged from "occasional to frequent."

Several thought the NIAC gave ample opportunity for teamwork during exercises.

Most participants did not use on-line collaborate software tools (like IWS). Some cited systems and bandwidth problems as hindering use of these tools. Others said the phone and email were just as effective.

Most participants expressed limited knowledge about the IC and DoD communities (including missions and products/requirements). All said these subjects were inadequately covered in the basic courses (especially the NIAC). A better understanding of the community could improve collaboration with external organizations.

Several GAs said that IA managers don't understand ("have no clue") the skills and capabilities on GAs. This hindered teamwork and collaboration on projects.

The IAs and GAs all acknowledge a lack of mutual understanding about each others' jobs and tradecraft.

One IA stated that GAs lack initiative to join in or take lead (note: she was surprisingly blunt and dismissive, especially considering the GAs were in the room. More so since she was a very junior analyst).

One GA said that he's practices "politely inserting" himself in work conversations between IAs in his branch. He can then offer ways to use GA skills to help address branch projects. He said that he is usually not asked to help.

Both GAs seemed willing to accept a supporting role in work relations with IAs (several IAs indicated that this was the natural order in their branches).

A number of participants praised the NGA new employee orientation program in that it gave them basic insight into the missions of NGA offices, occupations.

Differing Points of View

None.

Now that you've been on the job, what skills and knowledge do you believe will help continue your professional development?**Response Summary**

All participants wanted opportunities for follow-on training. Many were unsure of what was available, where to access them, and which training programs to pursue.

Specific Comments

One member asked that we bring back senior analysts before they retire, so that they can impart their job experiences to the students.

Most wanted intermediate-level training available soon after NIAC to build on basic knowledge and skills. These courses should be short and issue-specific (such as a certain OB or region).

Several IA participants highly recommended the Military Analysis Seminar (NGC advanced course). They liked the "real world" lessons and experience discussed.

Most would like access to regional overviews (from culture, geography, etc. to military/intelligence issues)

Many in the group said that it's difficult to know what training is available – both in and out of NGA. They also didn't know what training they should take to support their career progression.

All would like to see a set, scheduled and formal follow-on (intermediate & advanced) curriculum.

Differing Points of View

None.

Interview Findings

Representatives from NGA Training & Doctrine visited a broad population of entry-level training stakeholders, including subject matter experts (SMEs), branch /division chiefs, and recent graduates of the NIAC / GATP / GTP.

The following list calls out the individuals that were consulted via interviews.

Jason Anast	Rebekah Barrish	Justin B.	Dan DiVittorio
Jennifer Haley	Craig Haney	Dee Hunsucker	Jamie Jisa
Mary Kubik	Ken Leasher	Mike Lechlitner	Bryan Litteral
Kyle Meisters	Tom Maddox	Tommy Murphy	Tom O'Hara
Bruce Oppenhagen	David Reilly	Luis Rosas	Neal Stewart
John Stiasney	Dave Sullivan	Scott Symanski	Cinda Taylor
John Tierney	Glenn Turner	Terry Wilcox	Bill Wilder
Ted Wolff	Stephen Zollnerowich		

The topics of these interviews included, but were not limited to:

- ~~///~~ frequently developed products
- ~~///~~ appropriate sensor mix
- ~~///~~ common tools and resources
- ~~///~~ collateral intelligence sources
- ~~///~~ ratio of identification to analysis
- ~~///~~ collection tasking
- ~~///~~ briefing and communications skills
- ~~///~~ feedback concerning student performance

We've organized the responses to the interview questions as shown in the table below. For simplicity & readability, the tables present summary responses from the interviews. Where applicable, we have included specific comments and differing points of view.

TOPIC TITLE

Summary

In most cases, the information gathered for each topic was very similar from interviewee to interviewee. This section will summarize the majority of interviewee responses.

Specific Comments

Some interviewees offered specific comments concerning a topic. This section will include those specific comments, along with the role of the individual that offered the comment (SME, Supervisor, Recent Graduate).

Differing Points of View

While the majority of interviewees provided similar feedback, there were occasions when interviewees expressed a point of view that differed from the majority. This section will include those differing points of view, along with the role of the individual that offered the point of view (SME, Supervisor, Student).

Frequently Developed Products

Summary

NIIBS / Cables / First Looks / IR – depending on the account or issue worked, the requirement to develop these products may vary from once a week to once a month.

Database Remarks – proficient analyst with a reasonable amount of activity within their account will create 8-10 database remarks each day (each consisting of 2-6 paragraphs)

Baselines – this is an important task that unfortunately does not get the attention that it deserves from analysts that are swamped with viewing daily imagery and developing remarks and cables. Ideally, an analyst will update their baselines as frequently as possible. Realistically, an analyst manages to update one baseline each month. It takes days to properly research and prepare a baseline.

IA / GA Fusion leading to new categories of products:

- ✍ Spatial Data Viewer: geo-referenced maps and images
- ✍ Interactive Maps: Map-base with interactive icons and content
- ✍ Scene Visualizations and Web Pages – 3D products with interactive content

New analysts often do not know how to properly classify the products that they build.

Specific Comments

An average account may consist of 200 targets. To update target baselines once each year, you would need to update four baselines each week. – SME

New analysts should at least be introduced to some of the lesser known products, such as PDBs and SEIBS – SME / Supervisor

While the entry-level course should include examples of baselines, it is probably not a product that you would expect the new analyst to complete within the course. – SME / Supervisor

New analysts have a tendency to slip into present tense when reporting on second and third phase products. Furthermore, the new analyst needs to apply brevity (economy of words) and clarity to the development of such products. – SME / Supervisor

Differing Points of View

Be careful about focusing on product development, because the products change frequently. – SME

Common Tools and Resources

Summary

Tools / Applications include:

- | | |
|--|--------------------------|
| ///NES (ArcView Plots) | ///FalconView / TopScene |
| ///IEC / RemoteView | ///NGA S/C Server |
| ///ArcGIS / ERDAS | ///Lotus Notes |
| ///M3, WebSafe, CIRAS | ///Applix |
| ///Intelink / Web Browsers | ///Ruler |
| ///MS Office (particularly PowerPoint) | |

OSINT – trade magazines, etc.; Jane’s Web Sites (Defense Weekly)

NGA Keys

Command Web Pages

Multi-INT Agencies – Web Pages; Networking with contacts

Tasking Coordination Center

Early Bird provides excellent context

Efficient maintenance of bookmarks

Specific Comments

Along with NES, the student needs to be introduced to the general process required when submitting a remark. – SME / Recent Graduate

New analysts need to be introduced to the concept of research and effective research practices. – SME / Supervisor

Each course on an OB or other topic should list the related Intelink sites. – SME / Supervisor

New analysts do not understand the technical aspects of imagery (MIDB, Accuracy, etc.) – SME / Supervisor

Differing Points of View

Do not spend too much time on the mechanics of the job / tools; focus on the process. – SME / Supervisor

While learning the tools is helpful, there are many tools and they frequently change – students would benefit more from learning the theory and processes behind the tools. – Recent Graduates

Ratio of Identification and Analysis

Summary

New imagery analysts need to know *how* to identify, rather than the specific signatures of a huge number of equipment pieces. Of course, there are a few pieces of equipment that serve as a fundamental baseline that they must know . . .

New analysts need to understand the process of target development.

Too much equipment identification is simply overkill, once the analyst understands the process of identification, they should be adept at the skill without relying upon rote memorization of imagery signatures.

New analysts have no concept about how to weigh and evaluate the various sources of information (OSINT, HUMINT, SIGINT, IMINT).

Recent graduates do not have a clear understanding of how militaries operate (e.g. importance of logistics and its impact on capabilities). Furthermore, they often do not understand the capabilities of the equipment that they have learned to identify.

Specific Comments

A new analyst needs to learn the process that they will be engaged in on a daily basis – review of imagery (h/c and s/c), review of collateral, field reporting, and raw intelligence to build products for use by policymakers, commanders, and other intelligence analysts. – SME

New analysts need to go beyond the “what?” to the “so what?” and the “now what?” – SME

Recent graduates think that they know more than they do. Because they learned using rote memorization of imagery signatures, they are not as capable at “thinking outside the box”. – SME / Supervisor

The orders of battle are not stand-alone topics. Within the regional branches, the orders of battle are essentially integrated. The exercises within the entry-level course should reflect that real-world integration. – SME / Supervisor

New analysts do not recognize the importance of cultural features / context and its role in geospatial intelligence analysis. – SME

Field trips where students actually get to see the equipment in action are invaluable. Suggestions include Fort AP Hill and Quantico. – SME / Supervisor

Appropriate ratio would be: two-thirds identification exercises and one-third analytical exercises – SME / Supervisor

Structure of analytical exercises should be issues-based rather than OB-based. – SME / Supervisor

Differing Points of View

OB blocks should not be the bill-payer for incorporation of additional analytical content. The proposal to add analytical content is venturing into the mentor's and branch chief's responsibilities. – SME / Supervisor

Do not simply eliminate the older equipment, as this equipment often turns up in the Third World accounts. – SME / Supervisor

Briefing and Communications Skills

Summary

New analysts need to understand that there is a huge difference between writing and reporting and a huge difference between detail and relevance.

New analysts must be adept at using MS PowerPoint to develop effective briefings.

New analysts do not know how to adjust their style to the type of audience that they are addressing.

Specific Comments

Briefing and communication skills are something that should be emphasized and practiced throughout the entry-level course. – SME / Supervisor

Students in the entry-level course should be writing / reporting on a daily basis. – SME

The new analyst needs to understand how to answer the following: Who are the customers? How do I effectively communicate with this customer? What information do they need and in what format? – Division Chief

New analysts tend to read their briefings, without eye contact or appropriate inflection / emphasis. – SME

New analysts often do not know how to properly classify the briefings that they build. – SME

Supervisors and mentors should have the opportunity to review the products and briefings that new analysts create in the entry-level course. – SME / Supervisor

New analysts need to be introduced to both the mechanics and the process for the development of briefings. – Supervisor

Differing Points of View

Often, the branch or division level management dictates the briefing style. – SME / Supervisor

Appropriate Sensor Mix

Summary

75% Electro-Optical with the remainder covering the other available sensors (e.g., multi-spectral), platforms (e.g., airborne), and sources (e.g., commercial)

Specific Comments

New analysts need to have a better understanding of sensor and platform capabilities and how to use those capabilities to solve analytical problems. – SME

While it is important for new analysts to familiarize themselves using electro-optical imagery, the sensor mix needs to better reflect the imagery available in the average NGA P working environment. – SME / Supervisor

Differing Points of View

60% Electro-Optical with the remainder covering the other available sensors (e.g., multi-spectral), platforms (e.g., airborne), and sources (e.g., commercial).

Collateral Intelligence Sources

Summary

New analysts need an introduction to the intelligence community, collateral sources of intelligence, and how to effectively use that information in order to produce effective analysis.

Ideally, new analysts should gain practice using collateral intelligence through analytical exercises in the entry-level course.

Specific Comments

New analysts should be prepared to serve as “imagery-based all source analysts that focus on particular issues”. – SME / Supervisor

New analysts need to understand that they can benefit from informal networking as well as reviewing field reporting. They should collaborate with their counterparts in other agencies in order to ensure that they get the latest and greatest intelligence. – SME / Supervisor

Differing Points of View

While an introduction to the use of collateral intelligence is important, we must be careful not to emphasize collateral intelligence to the point that new analysts do not feel comfortable reporting without support from collateral intelligence.

Collection Tasking

Summary

New analysts do not really have a thorough understanding of the collection assets, their capabilities, and the process for tasking collection. This has a huge impact on their ability to work efficiently.

New analysts are incapable of building collection strategies. They do not have an adequate understanding of available sensors, INTs, or platforms.

Specific Comments

In many instances, application of Geospatial Analysis drives effective collection tasking. – SME / Supervisor

Collection strategies and tasking is a topic that should be brought up repeatedly, throughout the entry-level training course. – SME / Supervisor

Differing Points of View

N/A

Feedback Concerning Student Performance

Summary

Does the student demonstrate spatial acuity – can they see things in a vertical perspective? (documented by acceptable performance on identification exercises).

Does the student demonstrate analytical abilities – can they recognize and interpret activities, capabilities, and threats? (documented by acceptable performance on analytical exercises)

Does the student demonstrate professionalism? (documented through detailed notes by the instructor, calling out attendance, classroom behavior, teamwork, and leadership)

Can the student effectively communicate ideas through written products and briefings?

The students should be encouraged to maintain contact with their home branches. This could be encouraged via projects and assignments within the entry-level course.

Supervisors would like documented information about student performance while they are in the entry-level course. While the rubrics may be helpful for documentation, a summary of overall performance and participation would be sufficient for supervisors.

Specific Comments

I would like to review the product(s) developed by the new analyst that will be joining my branch. I can provide feedback to the new analyst and also get a sense of the type of support he or she will require when they arrive. – SME / Supervisor

The NIAC / GTP test score average is weighted for 25% of the new analysts performance review. – SME / Supervisor

If a new analyst is going to join my branch, I would like to have some insight as to the character of that new analyst – do they demonstrate initiative, attention to detail, a professional work ethic? – Supervisor

NGC needs to provide documented information about student performance, so that those individuals that do not possess the raw attributes or sufficient professionalism to serve successfully as IAs can be reassigned or terminated. – Supervisor

A test score does not tell me whether the new analyst joining my branch will be an effective analyst – it's just a number. – SME / Supervisor

The entry-level course needs to also serve as a “welcome to adulthood” experience for recent college graduates. The course needs to introduce the standards of professional conduct and hold students accountable for their professionalism and maturity. – SME

Test scores need to reflect more than simply identification, the course should incorporate exercises that require both identification and analysis and then document student performance on those exercises. – SME / Supervisor

Differing Points of View

N/A

Emerging Topics from Interviews

The following topics emerged repeatedly during the course of the training needs assessment interviews. The following text details the associated comments

Increasing Real-World Context

Comments

The GA entry-level course (formerly GATP) covers *all* of the features of the various GA software tools, rather than focusing on those features and capabilities that the NGA GA would most frequently use in the context that the NGA GA would use them. – SME

New geospatial analysts need to know how to use the various GIS tools in the context of NGA's mission and their daily job. The entry-level GA course (formerly GATP) focuses on the buttonology, but neglects the problem-solving aspect of a GA's job. – SME

New analysts have no concept of the various Commands' capabilities or requirements. They are at a loss when they deploy and are expected to support tactical activities. – SME

Entry-level training course should include data that reflects the common problems encountered with raw data, so that analysts will graduate with the trouble-shooting skills that they will require for their daily responsibilities. – SME

Intermediate and Advanced Courses

Comments

Given the way that the WC is currently staffed, intermediate courses need to be offered frequently or built so that they can be completed at the learner's pace with some support from a mentor or the instructor. – SME / Supervisor

Intermediate and Advanced courses are not offered frequently enough. – Branch Chief

Importance of Light Table Familiarization and Exercises

Comments

Only way to learn how to efficiently search is to actually do it . . . S/C is more difficult than H/C, but you need to be capable at either . . . – SME

Some regions rely heavily upon historical imagery, often only available in H/C. For those regional branches, S/C skills alone will not suffice. – SME / Supervisor

Training Requirements of Deployed Analysts

Comments

When I was deployed, 75% of my mission would not have been possible without collaboration of Geospatial Analysts. – Recently Deployed Analyst

Additional knowledge of GA skills and tools would have been very helpful to me as a deployed analyst. Luckily there were a number of experienced analysts within my team that were willing to help me out. – Recently Deployed Analyst

Deployed analysts need to understand that the military customer has an entirely different mindset – tactical rather than strategic concerns; uses different software; focuses on coordinates for smart munitions and tools. – Recently Deployed Analyst

It is very important that students understand how to correctly classify NGA products. As a deployed analyst, it is almost guaranteed that you will build releasable products. – Recently Deployed Analyst

CENTCOM Site Visit Findings

Representatives from NGA Training & Doctrine visited the NGA Support Team at CENTCOM.

The CENTCOM Imagery and Geospatial Branch is organized into three separate groups: 1st and 2nd phase, Imagery Support, and Geospatial Information Systems. The 1st phase portion of the 1st and 2nd phase group consists of 30 analysts working 2 shifts. The 2nd phase portion of the 1st and 2nd phase group consists of around 23 analysts assigned to 5 different teams: Iraq/Iran, Central Asia, Horn of Africa, Arab Peninsula, Jordan/Egypt.

The Imagery Support Team conducts system maintenance /testing and is responsible for training new analysts to use the systems and tools available to them. New analysts spend a brief period of time with the Imagery Support Team, becoming familiar with the software and tools available to them. They then spend their first 18 months in the 1st phase group, before being assigned to a 2nd phase team.

The GIS team is a recent addition to this branch and is currently located in another building. The branch is looking to NGA to demonstrate best practices on the integration of imagery and geospatial analysis.

The following list calls out the individuals that were interviewed during the CENTCOM site visit.

MAJ Janine Graham – Imagery & Geospatial Branch Chief
 Mike Banes – First Phase Supervisor, NGA Senior Analyst
 James Federico – RJITF Manager
 Fred Perez – NGA Senior Analyst
 Jay Ansell – Subject Matter Expert
 Stephen Gerardi – Recent NIAC Graduate
 Amanda Park – Second Phase Supervisor, NGA Senior Analyst

The topics of these interviews included, but were not limited to:

/// frequently developed products	/// appropriate sensor mix
/// common tools and resources	/// collateral intelligence sources
/// ratio of identification to analysis	/// collection tasking
/// briefing and communications skills	/// feedback concerning student performance

We've organized the responses to these questions as shown in the Key below.

TOPIC TITLE

Comments

In most cases, the information gathered for each topic was very similar from interviewee to interviewee. This section will summarize interviewee responses.

Frequently Developed Products

Comments

CENTCOM NST is initiating a new, dynamic product known as a CIIB (based on a NIIB).

There are two predominant types of products: IESS reports (descriptions) and image graphics (providing annotated imagery graphics for briefings). Any training on the effective visual display of information would be immensely helpful.

The CENTCOM NST generally follows CENTCOM guidance for product development. The majority of products produced by CENTCOM NST members include descriptions, current intelligence, and updating the MIDB.

“When I graduated from the NIAC, I had no concept as to how to build a NIIB.” – recent NIAC graduate

Common Tools and Resources

Comments

RemoteView	IWS
Intelink	ArcView
RMS Research	OilStock
IESS (estimated transition from NES as a reporting tool = 3 months)	
Light Tables used for research / U2 imagery only	

Ratio of Identification to Analysis

Comments

New analysts need to understand the process of identification, rather than memorizing identification signatures of a variety of equipment. Memorization degrades the big picture of imagery analysis.

New analysts do not understand the analytical process. New analysts tend to focus on the target, without looking at the surroundings to develop the context.

New analysts have no concept of how to think critically. There is a lot more analysis required than the new analysts are willing or able to do.

Knowledge of TO&E is critical to the commands. Identification of “blue” forces is critical, particularly given the increased deployment of coalition forces.

In the last two years (with the rise of the asymmetric threat), CENTCOM has started to encourage critical thought and analysis. Analysts are encouraged to describe what is happening, rather than simply inventorying what is there.

Entry-level course needs to incorporate more than “what piece of equipment is that?”; needs to include “what is happening?” and “why is it important?”.

“The NIAC did not include any explanation of activity and how that can be derived from imagery.” – recent NIAC graduate

Briefing and Communications Skills

Comments

At CENTCOM, imagery analysts rarely conduct briefings, this responsibility falls to the all-source analysts. However, imagery analysts often prepare the visuals that appear in briefings and make a practice of attending briefings in order to support the all-source analyst.

In general, the CENTCOM products are less polished than the average NGA product due to the short turn around necessary to support ops tempo.

Appropriate Sensor Mix

Comments

For I&W / First Phase, an analyst might look at 100-200 Y shots daily.

While MSI is introduced at the schoolhouse, understanding is not deep enough for it to be used effectively on the job.

Collateral Intelligence Sources

Comments

JICPAC organizational structure is an excellent example of effective multi-INT collaboration.

Research of collateral intelligence sources usually occurs within the 2nd phase group.

Collection Tasking

Comments

New analysts need to have a better understanding of orbital mechanics and the capabilities of sensors.

At CENTCOM, it is traditionally the responsibility of the all-source analyst to task collection. However, NGA NST staff members are making inroads with the all-source analysts by convincing them to collaborate with IAs before submitting tasking.

Feedback Concerning Student Performance

Comments

Managers would like to review the instructors' impressions of the students' skills and capabilities; a summary of the students' performance on a final exercise that incorporates the most critical elements of the training content would be helpful as well.

Respondents indicated that they would like to review instructor comments along with the students' grades on each block's exams. Managers are very interested in the source of any noted performance issues.

Emerging Topics from CENTCOM Site Visit

The following topics emerged repeatedly during the course of NGC's visit to CENTCOM. The following text details the associated comments.

Preparing Analysts to attend NGA Entry-Level Training

Comments

Often there is a significant gap between when an analyst joins the group and when they start their entry-level training. CENTCOM would like to better understand how to prepare their analysts for training – what will be taught? Do the new analysts need any pre-requisite knowledge? What features of RemoteView will be used in the classroom?

Function and Importance of MIDB

Comments

NGA Support Team Analysts at the command need to understand the Modernized Integrated Database (MIDB) and the need to update and verify its contents through imagery analysis and reporting.

Understanding the Customer's Requirements

Comments

New analysts and even experienced analysts from NGA have great difficulty adjusting to the pace of the customer. An analyst may need to review an image, annotate the image, and ship it to QATAR within a 20-minute time frame.

New analysts arriving from NGA need to understand the differences between national and command requirements. At NGA North, the analysts support decision and policy making; at CENTCOM, the analysts support the warfighter – products can ensure that people don't die.

At CENTCOM, analysts are expected to make their own graphics and check their own message traffic.

Need for Research Skills

Comments

New analysts lack the ability to effectively research – whether the topic is a piece of equipment or an analytical issue.

"Intelink Research is truly a force multiplier for the imagery analyst" – SME / Supervisor

New analysts are sorely lacking in research skills. They are not aware of their connectivity to sources (NES, NSA, DIA, CIA) nor how to use those sources effectively.

Imagery and Geospatial Analysis Integration

Comments

Commands are looking to NGA to provide best practices on the integration of IA and GA.

The integration of Imagery and Geospatial Analysis would benefit from provision of the appropriate tools and co-location of the analysts.

"From the Command's perspective, most GA products are too long-term to benefit the customer. The typical turn-around time required of a deployed IA is 2 minutes." – 2nd Phase SME

Command imagery analysts and other IAs /Gas that have not had the opportunity to go through the integrated training program (GITP) would benefit from abbreviated training that will help them to leverage the strengths of the two disciplines in order to conduct better analysis and build integrated products.

Asymmetric Threat

Comments

Commands can offer lessons learned about analysis techniques and signature for asymmetric threat.

Classification Policies

Comments

Most products built by the CENTCOM need to be releasable (for use by coalition forces). New analysts do not understand how to effectively classify their products.

Reachback to NGA "North"

Comments

Maintaining a sense of the NGA culture at the Commands is a real challenge. Understanding the NGA culture is critical, particularly for promotions.

CENTCOM NST management recommends that analysts take a minimum of two courses each year and conducts a one-week "analyst's exchange".

It is critical to share the capabilities of the different NGA band levels with the Command. Often, the Command does not get their "money's worth" from the NGA analysts because the Command is not aware of the analyst's capabilities.

Intermediate and Advanced Courses

Comments

Would like to see intermediate courses packaged specifically for the Command's AOR. Two-day courses are ideal, given the pace of operations and staffing structure at CENTCOM.

Self-paced country studies would be helpful – targets specific need without interrupting workflow.

Intermediate courses focusing on analytical thinking would be helpful to journeyman analysts to help them make the transition to the 2nd phase environment.

Country or region specific seminars offered by the Special Ops College at Herbert AFB would be very beneficial to analysts as intermediate courses.

Intelligence exchanges are immensely valuable as advanced courses. An analyst would need to work an account for at least 18 months before an exchange would be beneficial.

Need for an intermediate course focusing on low intensity conflict – how to develop signatures for non-traditional threats.

"Preparation for Conflict" seminar should be a required course for any NGA analyst that is being deployed to a command.

Definition of "Deployed"

Comments

Big NGA considers analysts located at the Commands as deployed. Commands consider analysts serving in the field as deployed.

Online Survey Results

Using the qualitative data gathered through focus groups and interviews, NGC developed an online survey to collect critical data from a larger sampling of the target population. The analysis of the on-line survey will result in another source of quantitative data to triangulate in reference to the qualitative data of the focus groups and interviews.

There were a total of 97 responses to the survey when it was pulled off-line for preliminary analysis. Of these 97 responses, some were duplicate and others were not useable due to the fact the respondents had completed the demographic portion, but did not answer any of the task, gap analysis or system/tool/application analysis questions.

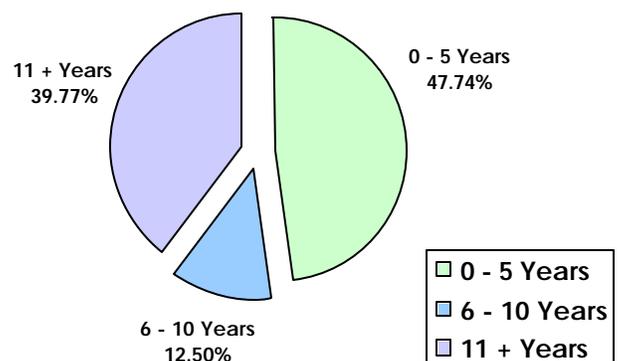
The total number of responses used in these analyses is 89. Given that the Imagery Analyst population is approximately 1,300 strong (per the NGA IA Occupational Specialty Guide), this would equate to a 6.8% response rate. This response rate is within expected norms for statistical purposes. The demographic statistics of the survey respondents is well within expected ranges for the overall population of the P workforce.

Demographics – Occupation Specialty

The clear majority of respondents to the survey were imagery analysts. Specifically, 90.9% were imagery analysts, while geospatial analysts and other analysts (primarily regional analysts) both accounted for 4.55% of the respondents respectively. These statistics show that the results of the task and gap analysis sections will clearly be valid as they related to the IA occupational specialty, but the current data will not support a valid review of the training needs of geospatial analysts.

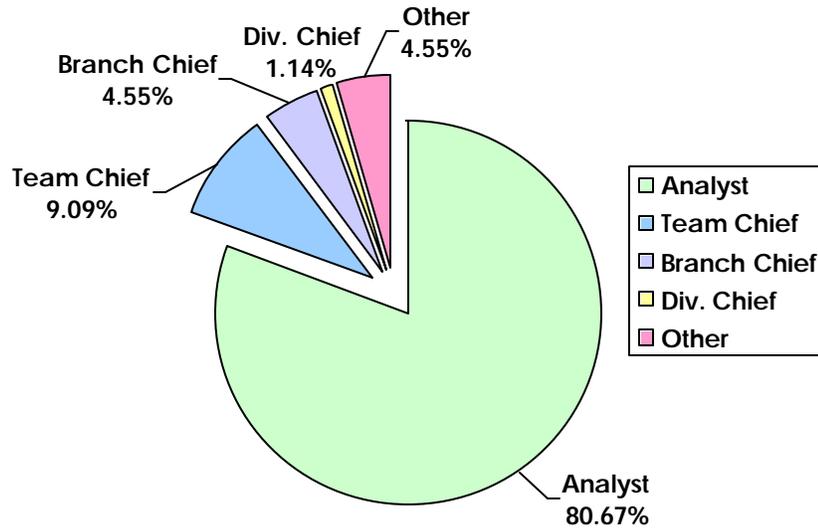
Demographics – Years of Occupational Experience

The majority of the respondents are entry-level analysts with 0-5 years of occupational experience (47.7%), followed by the most experienced analysts with 11+ years of experience (39.77%) and finally the journeymen analysts with 6-10 years of experience (12.5%). NGC believes that these numbers accurately represent the current P workforce given the decline of the mid-level/journeymen analysts.



Demographics – Current Job Function

As illustrated in the following figure, the majority of the respondents currently serve as an active analyst (80.67%) while the remainders serve as Team Chief (9.09%), Branch Chief (4.55%), Division Chief (1.14%) or some other function (4.55%).



Demographics – Area of Expertise

The following list calls out (in descending order) the areas of expertise of the sample respondents.

Area of Expertise	Percentage
Ground Order of Battle	35.6%
Regional Analysis	29%
Air Order of Battle	25.3%
Industries	17.2%
Naval Order of Battle	16%
Air Defense	14.9%
GIS	9.2%
C4I	6.9%
Offensive Missiles	5.8%

Skill Gap Analysis

As mentioned in the Methodology portion of this report, the approach used to determine training needs related to the IA Occupational Specialty is gap analysis. In order to analyze these gaps, all skills were broken down into five categories: 1) Image Interpretation Skills, 2) Basic Analytical Skills, 3) Writing and Communications Skills, 4) NGA Organizational/Customer Knowledge Skills and 5) Geospatial Skills.

The survey requested that respondents evaluate (on a five-point Likert scale) the importance of each skill/knowledge area and also (again, using a five-point Likert scale) that the respondents evaluate the level of proficiency that new analysts are able to perform these skills/understand each knowledge area. The gap is calculated as the difference between the importance of each skill/knowledge area and the proficiency that basic analysts are able to perform those skills. While there is always subjectivity and possible bias in using ordinal scale variables for measurement, the results of this analysis will, at a minimum, provide relative areas where training gaps exist.

The following tables outline the statistical findings/gaps related to each of the five categories of skills described above along with the mean importance of each skill and the top box score for each skill. These tables are ordered in descending order of the gap score.

Image Interpretation Skills			
Skill	Mean Importance	Gap Score	Proportions Rating Skill as Very Important
Collection process and strategies	4.42	2.28	62%
Applying classification caveats	4.57	1.87	63%
Applying advanced classification guidelines	3.97	1.85	35%
Using softcopy exploitation tools	4.84	1.77	90%
Applying search strategies	4.24	1.67	41%
Exploitation of radar imagery	4.61	1.50	80%
Exploitation of B imagery	3.59	1.36	13%
Exploitation of EO imagery	4.95	1.24	98%
Exploitation of IR imagery	4.34	1.1	59%
Exploitation of A imagery	3.64	1.1	22%
Exploitation of C imagery	3.27	0.49	4%
Using light tables	4.31	-0.05	62%

Basic Analytical Skills			
Skill	Mean Importance	Gap Score	Proportions Rating Skill as Very Important
Analyzing issues using multiple intelligence sources	4.88	1.98	89%
Applying analytical skills to intelligence issues	4.84	1.90	86%
Using/maintaining databases	4.8	1.58	82%
Understanding IA tradecraft	4.77	1.47	83%
Researching an intelligence issue	4.82	1.41	84%
Understanding GA tradecraft	3.69	1.26	22%

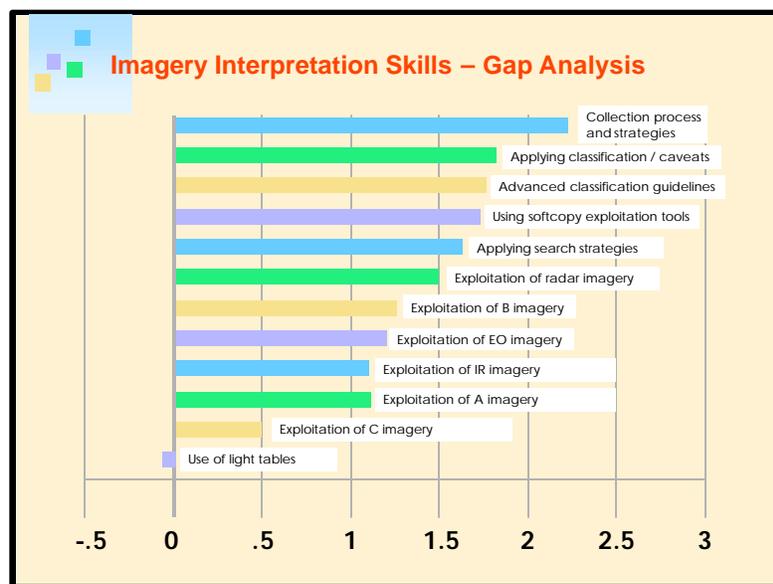
Writing/Communication Skills			
Skill	Mean Importance	Gap Score	Proportions Rating Skill as Very Important
Writing IRs	3.86	1.87	33%
Writing NIIBs	4.44	1.85	61%
Writing Cables	4.42	1.76	57%
Clear, concise, effective writing	4.88	1.62	91%
Writing baselines	4.33	1.54	51%
Writing FirstLooks	4.04	1.42	41%
Conducting formal briefs	4.20	1.21	41%
Writing Remarks	4.56	1.16	67%
Writing PIIBs	3.75	0.89	28%
Conducting informal briefs	4.38	0.65	46%
Conducting briefs via VTC	3.6	0.60	19%

NGA Organizational Knowledge/ Customer Knowledge			
Skill	Mean Importance	Gap Score	Proportions Rating Skill as Very Important
Mentoring new analysts	4.51	2.52	70%
Understanding NGA's customers	4.59	1.83	67%
Understanding NGA's Organizations	3.70	0.95	23%
Understanding NGA's mission	4.03	0.88	40%
Understanding NGA's strategic vision	3.42	0.85	23%
Teamwork	4.68	0.52	78%

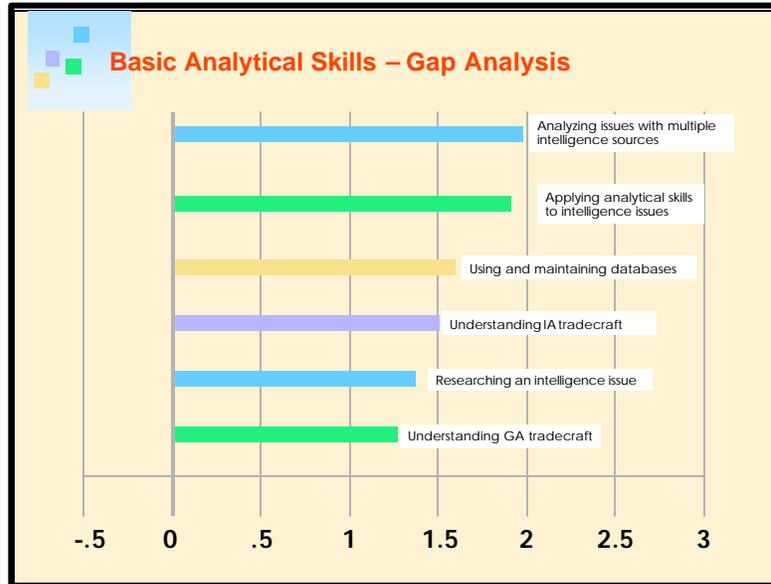
Geospatial Skills			
Skill	Mean Importance	Gap Score	Proportions Rating Skill as Very Important
Validating/evaluating data	4.68	1.84	75%
Computer-aided design	2.74	1.62	12%
Data mining/data gathering	4.45	1.23	58%
Creating custom geospatial products	3.44	0.96	20%
Formatting/converting data types	3.51	0.96	16%
Creating standard geospatial products	3.52	0.84	22%
Applying map creation standards	3.26	0.37	16%

For simplicity, NGC distilled these data into a series of graphics, shown below. The following graphics identify the gaps between the importance of a skill and the level to which new analysts are prepared to perform the skills after graduating from the entry-level course. NGC grouped measured skills in five general areas: imagery interpretation, basic analytical, geospatial, writing / communication, and NGA organization / customer knowledge. Gaps larger than 1.0 are considered significant.

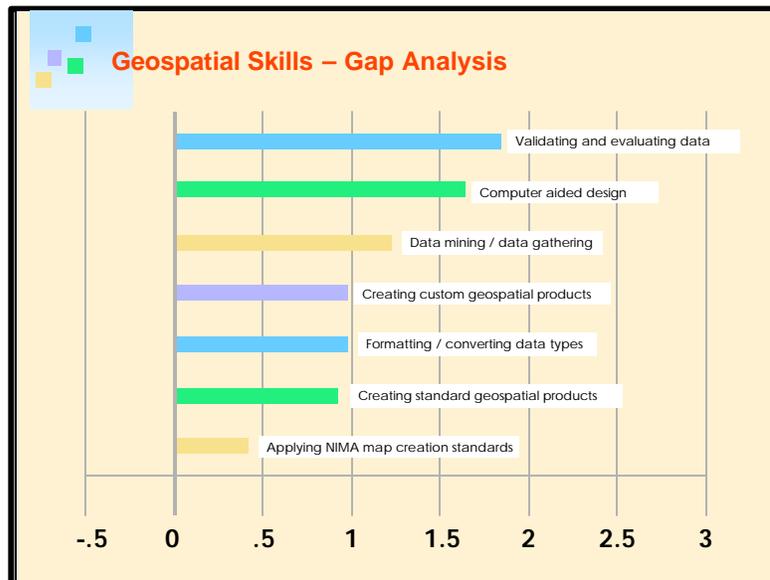
Within imagery interpretation skills, the significant gaps fall within: collection processes and strategies, classification rules, using softcopy, search, and multi-sensor exploitation.



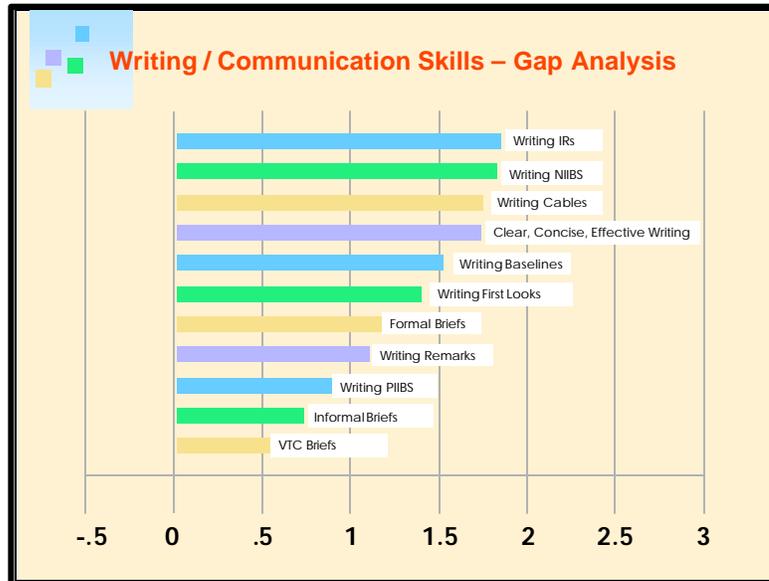
Within basic analytical skills, each of the six skills equated to significant gaps: analyzing intelligence issues using multiple intelligence sources, applying analysis skills to intelligence activities, using and maintaining databases, and understanding IA / GA tradecraft



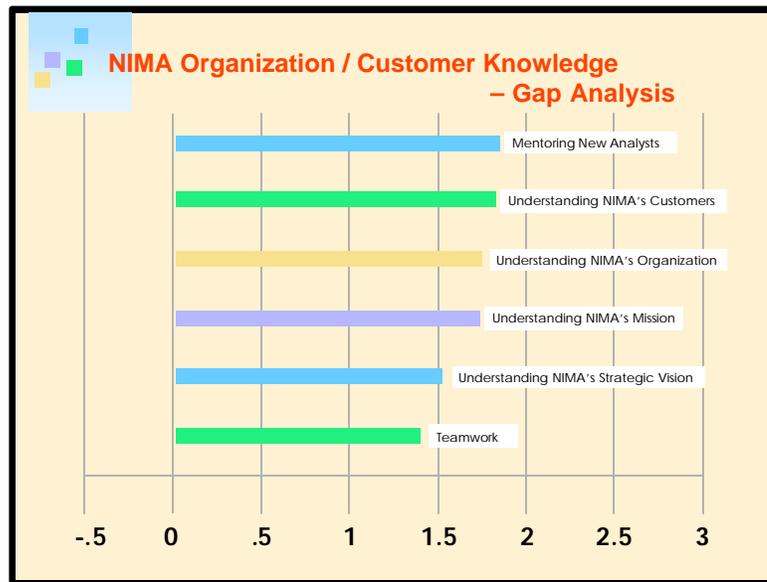
Within geospatial skills, the three most significant gaps were validating and evaluating data, computer-aided design, and data mining / data gathering.



Within Writing / Communication Skills, the most significant gaps were: writing IRs, NIIBs, Cables, Baselines, First Looks, and Remarks; clear, concise, effective writing; and formal briefs.



Within NGA Organization /Customer Knowledge, the most significant gaps were mentoring of new analysts and understanding the customer.



In addition to the results of the gap analysis, inferential statistical analyses were conducted to determine triangulation between the different experience levels of analysts within the sample. This analysis was done using a t-test to test for differences in the means of the importance of each task between two sub-groups of the respondents. Subgroup #1 contained IA's with 10 or less years of experience while subgroup #2 contained IA's with 11 or more years of experience. The limitation to two subgroups was chosen to keep an ample number of observations in each subgroup to provide validity to the results. In addition, two subgroups allowed the use of the t-test vice ANOVA, which is a more rigorous statistical procedure. Results of this procedure showed that both groups viewed the importance of all the tasks as being statistically the same with the exception of the following tasks:

1. Writing NIIBs – More junior analysts perceived this task to be more important than senior analysts.
2. Writing FirstLook Reports – More senior analysts perceived this task to be more importance than junior analysts.
3. Creating Standard Geospatial Products – More senior analysts perceived this task to be more importance than junior analysts.
4. Understanding the GA Tradecraft – More senior analysts perceived this task to be more importance than junior analysts.

Implications

Analysis of the data and information collected during the training needs assessment revealed eight major implications for training. These are listed and discussed below. There was, however, one dominant and overarching theme across the entire assessment, with broad implications for how NGC designs and conducts its entry-level analysis training programs:

The training environment must emulate the real-world NGA P work environment to the greatest extent possible.

Major Implications

- #1 – Add analytical content, and reduce rote imagery identification
- #2 – Adjust the current sensor mix
- #3 -- Introduce NGA P tools and workplace resources
- #4 -- Discuss intelligence community and use of collateral sources
- #5 -- Increase opportunities to practice reporting and briefing
- #6 – Familiarize new analysts with imagery collection strategies
- #7 -- Demonstrate appropriate use of hardcopy imagery
- #8 -- Improve classroom management and other administrative elements

#1 – Add analytical content, and reduce rote imagery identification

New analysts consistently commented about the need for increased analytical content within the entry-level course. While they recognized the importance of identification skills, they felt that the pure memorization of imagery signatures did not provide the knowledge that they need for their job.

The unwavering observation from recent graduates, senior analysts, and managers alike, was that the new analysts would benefit more by learning the methodology of imagery identification (e.g., the most relevant signatures of equipment types, effective use of keys and context, and a systematic approach to ID (such as the WEFT model for aircraft), rather than by memorizing the specific signatures of a particular piece of equipment or system. Numerous recent graduates commented that they “flushed” all knowledge of each order of battle as soon as they completed the exam.

Recent graduates commented about the slow pace of the lectures and indicated that their energy levels would be higher if they had more engaging exercises to stimulate their interest and stretch their analytical capabilities. On a similar note, senior analysts commented that recent

graduates seem lost when presented with an issue or problem that requires an analytical approach. To quote, recent graduates are adept at the “what”, but at a loss to address the “so what” and “now what”.

The data collected via the online survey corroborates the above findings as the gap analysis for the application of analytical skills to intelligence issues revealed a significant gap of 1.9.

#2 – Adjust the current sensor mix

Recent graduates indicated that while the sensors portion of the NIAC course was sufficient, it did not prepare them for working within the real NGA P work environment. They felt that the course focused almost exclusively on electro-optical imagery and did not provide them with the opportunity to review other sensors in the context of how they would use those sensors on the job. A number of recent graduates commented that they would rather review fewer systems or pieces of equipment, in favor of more opportunities to review non-EO sensors from an analytical perspective.

Senior analysts remarked that the integration of non-EO sensors was absolutely critical to the effective preparation of new analysts. The majority of analysts believed that the amount of EO imagery within the course should fall between 60 and 75 percent, with the remaining percentage devoted to the other available sensors (e.g., multi-spectral), platforms (e.g., airborne), and sources (e.g., commercial).

#3 – Introduce NGA P tools and workplace resources

Recent graduates repeatedly stated that they were at a loss to use tools and resources integral to their job functions upon graduation from the course. Tools such as NES, IEC, and the various collateral source databases (i.e., WebSAFE, CIRAS, and M3) were central to this topic.

Senior analysts noted that a significant amount of their mentoring time was spent introducing new analysts to the variety of tools available to them and how to effectively use those tools in order to work their accounts effectively. Furthermore, senior analysts and managers observed that new analysts required instruction in why to use the tools as well as how to use the tools.

Recent graduates also commented that they would benefit from a more complete orientation to NGA P offices and departments. During a focus group attended by aeronautical analysts, regional analysts, and a geodesist, it became apparent that new graduates would benefit as

well from an orientation to the other occupations within P and how they might collaborate across occupations to achieve NGA's mission.

#4 – Discuss intelligence community and use of collateral sources

Senior analysts consistently remarked that new analysts do not have a basic understanding of the intelligence community and NGA's role within the community. Furthermore, recent graduates stated repeatedly that they had no concept how to use collateral information in their research, analysis, and reporting.

New analysts and senior analysts alike observed that it would be helpful if the entry-level course introduced both the tools and the process for incorporating collateral sources into analysts and reporting.

#5 – Increase opportunities to practice writing and briefing

Recent graduates commented that while the current stand-alone writing and briefing courses were sufficient, they did not have the level of confidence required when they graduated from the entry-level courses. Recent graduates remarked that it would be helpful to have more opportunities to practice in the context of how they would use these skills on the job. For example, a number of recent graduates suggested exercises that involved identifying the significance of activity on imagery and writing database remarks to report on that activity.

Most recent graduates, as well as senior analysts and managers, were generally satisfied with the basic briefing training. That said, a number of recent graduates recommended more opportunities to practice briefing skills during the basic course.

Needs assessment participants were less satisfied with the basic writing training. Senior analysts verified the need for additional instruction and practice on effective writing and presentation skills. Senior analysts related this topic to implication #1 (add analytical content), stating that new analysts do not understand the "difference between detail and relevance". Consistently noted needs for new analysts' writing skills were: knowledge of NGA report formats and which format is appropriate to a given subject; straightforward, expository writing; and clear findings, effectively supported by evidence and analysis.

#6 – Familiarize new analysts with imagery collection strategies

Recent graduates observed that collection tasking and strategy was not emphasized in the entry-level course. They believed that they could work more efficiently and effectively in the

NGA P work environment if they had gained some fundamental knowledge about this topic in the entry-level courses.

Senior analysts within P verified that new analysts were deficient in their knowledge of collection tasking. Several analysts commented that collection strategies and tasking is a topic that should be brought up repeatedly, throughout the entry-level training course.

#7 – Demonstrate appropriate use of hardcopy imagery

Recent graduates expressed relief that NGC has moved to a softcopy exploitation approach for entry-level training. A number were at a loss to effectively use RemoteView when they arrived in their branch after graduating from the NIAC. However, even those analysts that work exclusively on IEC believed that the entry-level course should provide opportunities for students to become familiar with the capabilities and benefits of the light table.

Senior analysts were quite concerned about the conversion of the training environment to an all softcopy system. As practitioners, they were well aware of the need for light tables for instances when softcopy imagery is not available (research). Furthermore, senior analysts observed that new analysts are not proficient at light table search techniques. They felt that the entry-level course should provide opportunities for students to develop their light table technique and search methodology.

#8 – Improve classroom management and other administrative elements

Recent graduates perceived that the course was not effectively administered, particularly from a classroom management perspective. Specific comments alluded to inappropriate comments from the instructors, students that demonstrated unchecked unprofessional behavior in the classroom, and a general lack of accountability.

Senior analysts and managers were most concerned about how NGC evaluated students during the class and how NGC provided information about student performance to NGA P managers. A number of supervisors remarked that the entry-level course was a “vacuum” and that they had difficulty evaluating the performance of their supervisees due to a lack of sufficient information provided to them. Some managers put forth that they would like NGC to be more proactive in setting professional expectations for student behaviors and then holding students accountable (i.e., documenting any departure from professional behavior) for their management’s review.

Conclusion

In addition to the training needs assessment effort, NGC has gathered a wealth of data on the ongoing Geospatial Intelligence Training Program (GITP). This data includes both intensive assessments of student performance and evaluations of the effectiveness of course lessons and content. gathered a wealth of data in an effort to conduct a well-rounded analysis of its current entry-level course, the Geospatial Intelligence Training Program. Data collected on the GITP classes includes:

•• auditor reports	•• specific GITP student surveys
•• instructor quick look reports	•• tests and test item trending
•• managers' summary reports	•• evaluative rubrics and assessment tools
•• level one Kirkpatrick data	•• exercise scores

The key and consistent observations from the evaluative data collected during the GITP are shown below in the shaded area. These observations and other findings on the course have been provided to P in the Report on the Pilot Class of the GITP (7 November 2003).

a. better integration & context for GA lessons	
b. simple analysis & exercises in IA lessons	← Implication #1
c. current context in imagery lessons; less photo identification	←
d. non-EO sensors in the lessons (esp. radar)	← Implication #2
e. consistent classroom management	←
f. reliable and effective use of assessment & evaluative tools	← Implication #8

As shown, most of these observations on the GITP align closely with key implications drawn from the training needs assessment. Given the feedback from the GITP Pilots, NGC added a ninth implication:

#9 – Integrate of geospatial and imagery analysis to emphasize context of exercises

Throughout the GITP Pilot course, students consistently commented that the geospatial exercises consisted of procedural “button pushing” software exercises. Students did not understand the

value of the exercises and how the products they built would support intelligence analysis. Students reacted favorably to geospatial exercises where they received an introductory lecture presenting the intelligence problem, potential methods for solving that problem, and a brief discussion of how to arrive at a solution. With that approach, students better understood the driving problem behind the exercise and could benefit from a concluding discussion concerning the solution and the lessons learned through the exercise.

Several students and auditors also commented that they often did not have sufficient contextual information about the equipment referenced by the geospatial exercise to incorporate its capabilities into their analysis. For example, if the students do not have sufficient understanding of the capabilities of a SAM system, then they cannot effectively use the geospatial tools to anticipate SAM deployment and plot potential threat domes.

Needs Assessment Postscript: 20 November 2003 Offsite

To validate the triangulated data findings and the derived implications, NGC conducted a Training Needs Assessment Summary Offsite with a group of NGA P representatives on 20 NOV 03. The group included a cross section of the larger population interviewed and surveyed for the Training Needs Assessment. Representatives from P included: Jason Anast, Rebekah Barrish, Janet Betts, Pat Keonig, Ken Leasher, Fred Perez, Dave Sullivan, Glenn Turner, and Kate White.

The offsite began with a brief discussion of internal NGC reviews of the NIAC, GATP and GITP courses, and how this information underscored the need for a fresh assessment of our programs and P's evolving training requirements. We then presented the data and implications drawn from the needs assessment, and finally, discussed how the implications could be addressed by improving the GITP and NGC's follow-on (intermediate through advanced) curriculum.

There was broad consensus among offsite participants that we need to make fundamental changes to NGC's current entry-level geospatial intelligence training program. While the nature of these changes varies across the content and educational outcomes of the course, the participants agreed that the common unifying theme of change was that the GITP needs to better simulate the real P work environment, and graduate new analysts who are better prepared for their new jobs.

These changes to the GITP, if done correctly, will take time and significant Agency resources. They will also be worth the investment. These improvements will make the course more interesting for students, and produce more engaged, capable & knowledgeable graduates.

NGC intends to effect improvements to the training program based on the following principles:

PRINCIPLE #1 — INVESTMENT

Invest in a professional curriculum development cell led by an experienced manager. NGC will staff the cell with professional instructional designers, curriculum developers, and multimedia and documentation specialists.

PRINCIPLE #2 — COLLABORATION

Collaborate frequently and efficiently with NGA P management and subject matter experts; partnering instructional design resources directly with NGA's best and brightest analysts. The development cell will carefully document SME input to create formal lesson plans and course materials.

PRINCIPLE #3 — MANAGEMENT

Establish a formal course management board (including NGA P management and senior analysts, NGC management and instructional designers, and other interested parties) to approve any changes to the established course baseline of materials and activities. NGC will partner with P to ensure that any changes made to the established curriculum support P training requirements. NGC will also work with P to continually improve (within a known and carefully planned construct) the curriculum and ensure that it aligns with P's "next and after-next" strategic directions.

Next Steps

NGC will continue to work closely with the P Tradecraft Office on the implications derived from the Training Needs Assessment. Through January, we plan to brief the P production Offices (and their Division managers) on the assessment and its implications. Working with P subject matter experts from the ongoing P/NGC context integration effort (facilitated by PTT), we will begin conceptual modeling of curriculum modifications that would address those implications.

We will then host a P/NGC offsite at Camp Peary in early February. For this offsite, NGC will select one block of the GITP and invite the appropriate subject matter experts. At the offsite, NGC will collaborate with P to build a "proof-of concept" that would address the implications identified through the TNA process. We will then discuss and fine-tune the model, and consider its meaning relative to the larger GITP program. NGC would then brief the senior P leadership on these efforts to build understanding and support for the GITP evolution.