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MILITARY INTELLIGENCE

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20. Continued...

recommendations for corrective actions.

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SOURCES OF ACADEMIC ATTRITION
IN CMF 96
MILITARY INTELLIGENCE

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SUMMARY

BACKGROUND and OBJECTIVE

At the request of the Deputy Chief of Staff for Training and Evaluation (DCTE), US Army Training and Doctrine Command (TRADOC), a HumRRO consultant visited the US Army Intelligence Center and School (USAICS) to review USAICS' training programs for three Military Occupational Specialties (MOS) in Career Management Field 96 (CMF 96), Military Intelligence.¹ The objectives of the review were (1) to identify potential causes of the high academic attrition that had been experienced in CMF 96 courses during Fiscal Year 1975 and (2) to submit recommendations for corrective actions.

The three MOS-producing courses included in the review were (a) 96B-Intelligence Analyst, (b) 96C-Interrogator, and (c) 96D-Image Interpreter.

The on-site review was accomplished during 9-17 July 1975. During that period, the HumRRO consultant (a) reviewed academic records for all resident classes that had completed training in Fiscal Year 1975, (b) participated in extensive discussions with faculty and staff (particularly the course monitors assigned to the Evaluation Branch of USAICS, DCTE), (c) examined the MOD-B task listings completed by job incumbents for each MOS, and (d) reviewed the instructional methods employed for teaching each MOS. There was not sufficient time for the consultant to either interview a random sample of students from each course or conduct intensive analyses of proficiency tests.

General

a. The three courses were system engineered in late Fiscal Year 1974, including a conversion from norm-referenced testing to criterion-referenced testing (CRT). Under the revised evaluation method, students are required to achieve an explicitly stated performance standard for each of a number of job-referenced tasks; that is, he must demonstrate mastery by passing a specified percentage of test items concerning each criterion task. Upon initial application of the CRT method, the number

¹Appendix A presents a copy of the original TRADOC request.

of test items requires for "mastery" may have been too numerous with the consequence that the proportion of students who failed in the first six months of Fiscal Year 1975 was larger than that experienced for the norm-referenced Programs of Instruction (POIs) in Fiscal Year 1974. Reduction of the standards (not the criterion tasks required) over Fiscal Year 1975 has tended to reduce attrition levels.

b. Changes in the content of Basic Combat Training (BCT) has impacted on USAICS. Specifically, the elimination of map reading training in BCT has placed an additional burden on USAICS training of CMF 96, in which proficiency in map reading is an essential factor in job and training success. For example, lack of proficiency in skills involved in the map reading training for the USAICS courses for MOS 96B is a cause of much of the failure for this course.

Course-Specific

a. MOS 96B - Intelligence Analyst. Approximately 50 percent of the academic attrition for the Intelligence Analyst course is associated with failure in the map reading tasks which comprise a major portion of the job tasks associated with the entry-level requirements of this MOS.

The majority of the remaining academic attrition occurs on a concurrent/subsequent performance test concerning the "Evaluation of Enemy Capabilities." The latter block of instruction requires students to use field manuals extensively for comprehension, referencing, and information retrieval. It is highly likely that the reading abilities of many students are below the Reading Grade Levels (RGLs) of the Department of the Army publications used in this highly intense but essential block of instruction. (USAICS reported that the manuals had RGLs of 11-12.)

Student characteristics and media. The method of instruction for map reading training includes a heavy emphasis on the use of programmed texts for after duty hours self instruction in unsupervised situations. The use of programmed texts in a minimally-supervised learning environment can be considered detrimental for two reasons: (1) It is highly likely that most new input to the Army has not had experience in the use of this media; and, (2) students are reportedly accustomed to "spoon feedings;" that is, many are not accustomed to self-initiated or independent study methods.

Training texts and manuals. One of the manuals used for analysis of enemy capabilities is FM 21-30, "Military Symbols." Students are required to use this unindexed FM to construct line-block

diagrams of military organizations and to analyze map problems which depict various military organizations symbolically. Only a relatively small number of these symbols, which are presented in a student handout, are actually used in the course during training. However, during testing, the student must use the complete manual (and a related "aggressor" manual) instead of the student handout in order to convert symbolic data to verbally-presented intelligence evaluations. A reduction in information-processing time and confusion during the testing in this early block of instruction could be accomplished by permitting students to use the special student handout during testing rather than the complete FM.

Training objectives. A comparison was made of the MOD-B task inventory for this MOS and the criterion tasks included in the 96B course. This comparison indicated that a majority of the tasks included in the training program are not performed by entry-level personnel.

Training-testing consistency. Examination of a small sample of Practical Exercises and corresponding Performance Tests suggested that a "one-to-one" correspondence between training objectives (PE exercises) and test objectives (Items) may not always exist. That is, students may be trained on subtasks that are different from those on which they are subsequently examined. This possibility needs to be evaluated by an intensive comparison by USAICS of all training and testing objectives. Such an item-by-item comparison could not be done in the limited time available during this consulting contract.

b. MOS 96C - Interrogator. As implied by the job title, this POI trains persons to conduct interviews of foreign nationals and aggressor personnel to obtain information of tactical military significance. Several techniques of interrogation are taught, some of which involve deception and implied coercion. Much of the training involved individualized practice in interrogation, involving a role-player/POW, an assistant instructor/evaluator, and a student. This training culminates in a lengthy interrogation test given during weeks six through eight of the eight-week POI. Approximately one-third of the course attrition occurs during the third week in the course, on a performance test concerning developing an approach to, and preparing for, an interrogation. However, two-thirds of the attrition occurs as a result of performance on the sixth week examination. Although some of the latter attrition has been due to a lack of consistency between training and testing emphases (training emphasized "breaking down the POW's defenses versus a test emphasis on "milking" or information extraction following "breaking"), the majority of attrition appears to be attributable to student characteristics as described below.

The faculty reports that a vast majority (70-75%) of the new input to this MOS consists of persons who enlisted in the Army specifically for MOS 04B - Translator. Of the new input, about 50 percent have received training at the Defense Language Institute School before being assigned to USAICS for interrogator training. Many of these students reportedly were not apprised by recruiters that they were subject to a military intelligence assignment. The recruits may only learn of this eventually when they receive their initial orders after recruitment. It is reported that many of the course failures are students who are unable to employ deception techniques because of a conflict with personal ethics and values. Other students, who thought they were to be trained as embassy-type translators, lack the personality attributes to be dominant in a face-to-face interrogation situation. Inspection of academic records, which documented the reasons for student failures, supported the notion that these socially passive individuals are not firmly identified until the sixth week hurdle test.

It would appear that these factors involving recruiting practices, which are beyond the control of USAICS, are responsible for the vast majority of academic attrition in the course for MOS 96C. Since Headquarters, TRADOC has established that failure for attitudinal deficiencies is chargeable as academic, rather than administrative, attrition, it is highly likely that this course will continue to experience uncomfortably high levels of academic attrition. Only a change of policy/practices by TRADOC, Recruiting Command, and/or Department of the Army will markedly alter this situation.

c. MOS 96D - Imagery Interpreter. In Fiscal Year 1974 and early 1975, essentially all of the academic attrition occurred during the first one-fourth of the training program. During this period, the training emphasizes the preparation of maps portraying the operational situation, map overlays, and photo measurements (photogrammetric methods). Staff and faculty evaluation of the specific courses for high attrition in these modules of instruction suggested that failures were occurring due to inability of students to perform the mathematics skills involved in these tasks, even though math skills are a prerequisite for this course. The course was revised (beginning with Class 75-CB-5) to provide an initial block of instruction to remediate math skills deficiencies (a module called "Photogrammetric Principles"). After this course revision, essentially all attrition occurred as a result of inability to pass the four mathematics performance tests, especially those dealing with algebra and geometry/trigonometry. This remedial training uses subject matter content contained in a commercially prepared study guide and educational TV tapes that were originally designed for preparing students to pass a GED High School Mathematics Equivalency

Examination. Inspection of the performance tests suggests that not all of the present 26 hours of instruction are devoted to mathematics that is directly related to the job-related math needed for this MOS. The development of a new video tape program which is concerned solely with job-related math should reduce attrition.

However, the primary aspect of this problem involves DA, DCSPER, and Recruiting Command. The current prerequisites for this MOS include "credit for either high school algebra or high school geometry." However, recruiters are not required to verify that the applicant received at least a passing grade in either subject. It was reported that students said that recruiters usually asked the applicant if he "had a course in either subject." Considering the rather significant contribution of mathematical proficiency to training and job success for this MOS, recruiters should verify that the recruit actually passed the prerequisite high school courses.

Recruiting command may also be involved with a second cause of attrition for MOS 96D. Since Imagery Interpreters use stereoscopic viewing devices for image identification, job incumbents must possess normal stereoscopic acuity, and such a prerequisite has been established. A review of attrition records, however, reveals that 50 percent of the students who were dropped from the course for administrative, rather than academic reasons, lacked normal stereoscopic acuity when tested by medical personnel at USAICS, even though their pre-recruitment physical examination did not indicate such a deficiency.

CONCLUSIONS

The factors which appear to be contributing to attrition in CMF 96 are summarized in the following table. The estimates of "High, Medium, and Low" are the subjective evaluations of the consultant.

RECOMMENDATIONS

USAICS Actions

1. Review training objectives for 96B and 96D to delete course content designed to develop skills not performed by entry-level personnel.
2. Perform formal item analyses of tests given to 96B and 96D to explicitly define skill deficiencies, causes of failure, and verify validity of training content.

Table 1
Probable Contributions
To
Attrition in CMF 96

Attrition Factors	Courses		
	96B	96C	96D
Course exceeds entry-level job skills.	High	Low	Medium
Students do not meet prerequisites	Medium	Low	High
Recruiters mislead recruits.	Low	High	Low
Training content not job-relevant.	Medium	Low	Medium
Training and tests inconsistent.	Medium	Medium	Low
Students lack math proficiency.	Medium*	Low	High
Students are immature	Low	High	Low
Ineffective training methods.	Medium*	Low	Medium**
Vaguely-stated training objectives.	Low	High	Low

*96B students may need remedial math training.

**Delete irrelevant math; provide more time for job-related math.

3. Develop behaviorally-stated training objectives for POI for 96C.

4. On an experimental basis, provide a remedial math subcourse to be given students in 96B prior to map reading training.

5. Develop a revised TV program for remedial math which is designed to create job-related skills and uses course content appropriate to 96D (and 96B).

6. To reduce attitudinally-based attrition in 96C late in training, attempt to develop a training/testing sequence involving interpersonal dominance or "confrontation" which can be given during the first week of the POI. The objective of this initial "confrontation" training/testing is to identify those individuals whose personality characteristics, eithics, and/or values make them unsuitable to perform as an interrogator.

TRADOC Actions

1. Initiate necessary actions to insure that personnel recruited and/or assigned to training in CMF 96 satisfy all course prerequisites.

2. Request Recruiting Command to require recruiters to officially verify that candidates for CMF 96 satisfy academic prerequisites.

3. Request Recruiting Command to require recruiters to inform 96C candidates, before they enlist, that they are subject to a military intelligence assignment.

A REVIEW OF POTENTIAL CAUSES¹

GENERAL OBSERVATIONS

Graduation Criteria

The USAICS is advanced in comparison with other Army schools in having established a formal set of graduation criteria for courses of instruction. (See Appendix B for a copy of the criteria for each training program.) For example, the initial map reading test concerns five tasks, or criterion action elements. A student must achieve a field entry standard for each task; for example, one task requires the student to "Determine elevations to the correct one-half contour interval." In order to demonstrate mastery at the field entry standard for this task, the student must perform this task correctly on two out of three performance test problems. If a student fails to achieve the field entry standard for a task he is automatically allowed a retest, but he must achieve the standard on retesting in order to remain in the course. Retests are usually given after retraining which is done during open time or after duty hours. The students are informed that if they fail a specified number of tasks they will be ineligible for retesting without the approval of the Department Director. The latter has the option of permitting additional retests or referring the student to the DCTE with a recommendation concerning disposition.

This formal statement of graduation criteria was intended to motivate students to perform satisfactorily. Indeed, the systems does appear to identify those individuals who are either unwilling or not capable of learning the requisite tasks. For example, in the case of the 96B Course which only allows nine task failures, a majority of the academic attrition does occur within the first one-half of the course. During this time, three tests concerning fourteen criterion tasks are given concerning Map Reading (2 tests, each including 5 tasks) and Determining Enemy Capabilities (4 tasks).

When the consultant reviewed the formal graduation criteria for each training program, he initially obtained the impression that perhaps a rather "hard-nosed" and arbitrary procedure was being employed in student evaluations. However, discussions with course faculty and evaluators soon dispelled this misperception, since it was apparent from a review of individual student's academic records that a "whole man evaluation" procedure actually

¹The concept of "potential" or "possible" causes is stressed because the consultant could not perform an exhaustive analytical evaluation of three POIs in the time available.

was being used at USACIS. That is, before making a recommendation to drop a student, the Division Chiefs sought information from students and instructors concerning a drop-candidate's motivation, attitude, and personal situation. Academic drops reportedly occurred only when both test failures were high and a student's level of effort was low and the person's attitudes were poor.

Inspection of individual academic records indicated that a majority of the academic attrition occurred as a result of consistent failure of the retests early in the courses. Other students were retained in training (and graduated), even though their cumulative test failures were scattered over the whole POI and equalled or exceeded the formally-stated requirements. It would seem that formally-stated graduation criteria really serve to identify those individuals who are unwilling (or, to a lesser extent, unable) to accept the training being offered. Each of the three training programs has a diversity of difficult-to-learn content, and the training is intense. The graduation criteria serve to identify those persons who cannot (will not?) cope with such motivational or intellectual demands.

Variation in Criteria

The original draft of this report contained a brief discussion about a possible statistical relationship between attrition levels and number of graduation criteria. That discussion has been deleted because it had highly controversial implications. As can be seen from examination of the Graduation Criteria in Appendix B, the courses do differ in the number of tasks that can be failed on initial testing before action to drop a student can (but not necessarily will) be initiated. Over all three courses, students cannot fail entry-level standards on more than approximately 85 percent of the tasks. The statements of the criterion tasks are rather explicit for the 96B and 96D courses, since the students are learning tasks involving manipulation of data and material. This is not the case for the 96C course (Interrogator) which necessarily has a major emphasis on interpersonal and communication skills. Since there is such a taxonomical diversity of skills involved in the three courses, in retrospect, it does not appear feasible to make direct comparisons among all three POIs.

Scheduling and Retesting

Although there has been a historical controversy in experimental psychology concerning massed versus distributed practice, applied research on training of procedural tasks suggests that massed practice on a task or series of interrelated tasks followed by a proficiency test on those criteria tends to facilitate retention and yield a higher performance level than spreading out training and interweaving instruction on several not-necessarily-related tasks. For example, a review of class schedules for 96B suggests that

considerable interweaving exists much like that used in high schools and universities. The possibly adverse effect of interweaving subject matter is further compounded, at least during the early phase of instruction, by the number of people who have to be retrained and retested during open time and after duty hours because they failed an initial test. Students are required to relearn earlier skills simultaneously with learning new skills in a difficult subject matter. It is easy to understand how test failures could "snow ball" for the weaker students under such circumstances. The amount of interweaving in the courses for 96C and 96D is unknown since the consultant did not obtain class schedules for those POIs.

Instructor Attitudes

The general attitude of faculty and staff towards the students is overwhelmingly positive. Instructors devote a considerable amount of time each week retraining and retesting students. There is an extensive emphasis by Division and Department Directors and instructors on "whole Man" evaluation; that is, student motivation and attitude are evaluated along with his academic achievement level. It was apparent that if a student displayed interest and motivation, considerable effort would be expended to get such persons through the course.

Training Evaluation

Each course is assigned an evaluator from the Evaluation Branch. These personnel maintain near real-time records of each student's progress on the tests given. They also review curriculum content versus test content to detect divergent emphases and trends. The efforts of evaluators (and the instructors) seem to be hampered by a lack of contact with the MOD-B surveys of job incumbents for each MOS. These Department of the Army surveys apparently only are reviewed by staff assigned to the Deputy Commandant for Combat and Training Development (DCCTD). Several course evaluators were completely unaware of the existence of the most recent surveys, dated February 1975. It is of relevance that the Evaluation Branch established a student follow-up questionnaire program several years ago, but respondent return rate has been extremely low and the results are essentially unusable.

DCTE and DCCTD Interaction

These two major components of the School seem to be remote, both organizationally as well as geographically. The impression was gained that there is infrequent interaction between the Task Analysis Branch of DCCTD and the Curriculum and Evaluation Branches of DCTE. As a consequence, different conceptualizations of what constitutes essential entry level

skills and performance standards seem to exist. A closer organizational relationship would foster the establishment of possibly more realistic graduation criteria and performance standards. An outside observer obtains the impression that each of these three Branches "does its own thing" and goes its own way in this respect.

Map Reading and Math Training

Training in map reading is included in all three courses. A common and intensive training program is used for the 96B and 96D courses because of the number of tasks involving map preparation and information extraction required of entry level personnel in these two MOSs. A review of the MODB Task Listings indicated that use of maps in some form or other are the most frequently performed tasks for 96B and 96D personnel.

The interrogator training has a different and less intensive module on map reading which is functionally oriented to the "map tracking" task that an interrogator uses to trace the movements of a prisoner prior to capture.

The map reading instruction given the 96B and 96D students has undergone several revisions in the past year or so. It has just been revised to include more time for practical exercises, but during the majority of Fiscal Year 1975 the teaching method placed a heavy emphasis on self-study (with minimum supervision) using programmed texts adopted from texts produced at Fort Belvoir and Fort Rucker.

As will be discussed later in this report, a majority of the academic failures in the 96B course are due to test failures on the map reading module. This reportedly was also true for the 96D course before that program was modified to include an initial instructional module on remedial mathematics. At the present time, essentially no attrition occurs for the map reading module of the 96D course. The course evaluator reported that before the addition of the remedial math course, persons were failing map reading test problems which involved use of mathematics. Since the 96B and 96D courses have similar prerequisites, this observation raises three interrelated questions: (1) Specifically what types of math are used by 96B and 96D personnel on entry level tasks involving maps?; (2) Should a short remedial math program be given as the first module of the 96B course as is now provided in the 96D course; and (3) Should a high school math prerequisite be established for the 96B course like that required for the 96D course?

SPECIFIC OBSERVATIONS CONCERNING COURSES

Intelligence Analyst Course

Although the course for 96B is called an entry level program, the students vary in rank from E-2 to E-9 and include USMC NCOs and newly graduated "Boots." Since the one course is serving a student body which will function at different levels of skill, there has been a tendency to

include instruction on many tasks not performed by first enlistment personnel. This desire to satisfy FORSCOM's needs for MI personnel at all grade levels has probably produced a situation where the majority of students are overtrained--overtrained in the sense that they must master that won't be utilized for some time, if ever. It is presumed that this need to serve "too many masters" will be alleviated by the revisions that will have to be made to school training to satisfy EPMS requirements. Studies to revise course objectives for future training currently are underway within DCCTD, USAICS.

Although the attrition level for 96B was not unusually high (9%) in Fiscal Year 1975, it was inflated by the presence of a large proportion of USMC students. USMC input to this course tended to run 50 percent and higher. Attrition was inflated because the USMC did not approve recycling any failing students, due to a reported shortage of TDY funds. Whereas Army students could be recycled, Marines had to be academically dropped. If the Marines had permitted recycling, the academic attrition for 96B would have been lower than officially reported. It should be noted that the academic attrition rates for USMC and Army personnel were equal (about 9%).

The Intelligence Analyst (96B) Course apparently has more interwoven subject matter than the other two courses. Not only are there one-to-two day lapses between training and testing on a subject, but the need for retraining and retesting on earlier subjects conflicts with learning new skills. Weak students tend to find themselves in a "no win" situation, even though the instructors make commendable efforts to help them.

Attrition in this course (and that for 96C) may also be a result of a possible inconsistent, one-to-one, correspondence between the specific content of practical exam exercises and test problems. Evaluation of this possibility would require an intensive comparison of practical exercise problems and test items. Such an analysis could not be performed by the consultant during the relatively brief time period available under this consulting agreement. Although it is not recommended that the specific test problems be rehearsed during training, the types of problems employed in the test and training should be similarly structured. Just a brief review of the PEs and the performance test for the Enemy Capabilities Module revealed instances where students could have been either misled during training, or trained on one reasoning task but tested on an inversely related task.

The usability of reference documents may also contribute to early attrition in this course. For example, FM 21-30, "Military Symbols," is used by the student in the context of the test concerning "Enemy Capabilities" whereas, a briefer student handout is used in training for this examination.

Since the FM contains no index, and only a small proportion of its symbolic content is involved in the testing, it would seem more efficient to permit students to use the handout that is limited to the small group of symbols that will be involved in the test. The FM subsequently could be introduced in the course after students have mastered the more limited, but essential, symbols. FM 30-102, "Handbook on Aggressor," also deserves re-evaluation for readability. This manual is used extensively in the 96B course and contains a considerable amount of prose concerning the organization, materiel and combat capabilities of a hypothetical aggressor. It is reported to possess a 12th grade reading ability level. If students entering this course are representative of current high school graduates, it is likely that the Reading Grade Level of this FM is several levels above the reading ability of the average student. (Recent surveys have indicated that the average high school graduate reads at the 9th grade level.

Interrogator Course

Approximately three-fourths of the academic attrition in this course for Classes CH-1 through CH-9 occurred as a result of performance on tests given during the third and sixth week of training (about 30% on the first test and 45% on the 6th week test). The initial test is aimed at evaluation of a student's preparation for an interrogation which involves rather extensive dialogue with a POW's guard and processing of forms and documents which accompany the POW. This test tends to identify those students who are either unable, because of personality characteristics, or unwilling because of ethical-value factors, to perform as a dominant individual in a face-to-face questioning situation. In an effort to minimize attrition, it is highly likely that the instructors tend to give doubtful students "a break" and allow them to continue in training. The sixth week examination consists of a lengthy interrogation in which considerable information is to be extracted from a POW. This test really constitutes the major hurdle for the students. Additional moral objectors are revealed and more of the passive-personality types are detected. Students are not dropped because of personality characteristics, per se, but because their personality is such that they are unable to perform the tasks required of an interrogator.

According to the faculty, which is oriented toward salvaging all potentially successful interrogators, recruiting practices are responsible for the majority of their attrition level. A vast majority of the input to this course consists of persons who enlist for language training (MOS 04B). It is not until they receive their initial orders that they are advised that they are subject to additional training as an interrogator. Whereas, the Army Security Agency has persons assigned to BCT Centers to interview and screen potential ASA students, the MI Branch does not have this obvious recruiting/screening advantage. As a consequence, an underisable proportion of students assigned to 96C training neither desire that MOS nor are

emotionally-socially prepared to function in such a role. (The fact that the faculty can develop 80 percent of the relatively naive 19-20 year-olds into mature, self-assured interrogators in an eight-week period is a marvel in and of itself.)

Interrogator training requires a considerable amount of practice in a one-to-one, interpersonal situation. It is likely that some students are dropped because the faculty is grossly understrength (the TDA authorizes 40 EM instructors, but only 17 are on hand), even though each instructor devotes considerable extra-duty time for additional training and practice with students.

There apparently are some discrepancies between training emphases and test requirements. The interrogation training has tended to emphasize "breaking" the POW (getting the person to talk about anything) whereas, the sixth week test placed emphasis on information extraction ("milking") following "breaking." The training program and practical exercises currently are being revised to correct this technical problem.

It would appear, however, that the course could be revised so that those who are dropped for moral or personality factors are identified much earlier in training. At present, these persons tend not to be identified until they have received 50-75 percent of the training. Perhaps interviewing-confrontation exercises and tests could be moved into the first two weeks of training. The training might involve a simulation of a salesman's role, or a more structured interrogation could be designed in which the students are given a "crib sheet" that specifies specific types of information to be obtained from a POW. Attrition may not be reduced, but at least the costs of training would be reduced, and the understrength staff would have more time to devote to the more promising or potentially salvageable students.

Image Interpreter Course

The academic attrition rate for 155 students enrolled in the 96D course in the last eight classes of Fiscal Year 1975 was 18 percent. With the exception of four persons who failed map reading requirements, all the others were dropped because of retest failures in the remedial mathematics training (Photogrammetric Principles). Prior to the insertion of the remedial mathematics training in the course for 96D, it is reported that essentially all failures occurred during the initial four weeks in the context of map plotting, preparing map overlays, and photo measurement (photogrammetry). All of these modules required application of mathematical skills. Since introducing the remedial math instruction, essentially no attrition has occurred in these modules.

A review of the training and test content of the remedial math modules suggested that this training is based on a GED preparatory course, which includes a commercially-produced manual and educational TV tapes. A review of the content of this training suggested that some of the math training, while relevant to GED objectives, may not be relevant to the math used by a 96D on the job. Specifically, the instruction involving multiplication, division, etc., of common fractions and factoring algebraic equations did not appear to be job-relevant. Consideration should be given to deleting such instruction and devoting the time saved to additional training on job-related math. The individual math exercises and test items also could be modified to present the problems in the job context of the Image Interpreter. Such modifications would not only facilitate the deletion of job-irrelevant math, it would also assist the students in developing the job vocabulary needed by a 96D.

The second major source of attrition in the current course is administrative in nature, rather than academic. This source is associated with deficiencies or anomalies in stereoscopic acuity (the ability to perceive depth). The perception of depth is required when stereoscopic optics are employed to detect and identify objects photographed by stereoscopic cameras. About 50 percent of students who were dropped for administrative reasons had less-than-normal "stereo vision." Since normal stereoscopic acuity is a prerequisite for this MOS, that visual ability should have been checked during a person's pre-induction physical. However, although the records did not indicate such a deficiency, re-examination of some persons at Fort Huachuca indicated an absence of depth perception. This is a problem area beyond the control of either USAICS or TRADOC. A solution to this problem must come from Recruiting Command.

APPENDIX A

TRADOC Request



DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
FORT MONROE, VIRGINIA 23651

ATTNG-SC-A

12 MAY 1975

Dear Dr. Crawford,

A persistent problem facing this command is a high attrition rate in certain courses. This problem is extant command wide. While a number of causes have been identified, we would be interested in the conduct of an independent evaluation of a sampling of courses which are currently experiencing varying attrition rates. We have therefore selected three courses from CMF 96 (MOS 96B - Intelligence Analyst, MOS 96C - Interrogator, MOS 96D - Imagery Interpreter) at the US Army Intelligence Center and School, Fort Huachuca, Arizona, and propose that HUMRRO:

- a. Review prerequisites, methods, media, sequencing and content of these courses.
- b. Identify the causative factors of the high attrition rates and pinpoint the variables which impact on this problem.

TRADOC proposes that HUMRRO undertake this study for a period not to exceed 30 days with a cost ceiling of \$4000. Your personnel will be authorized access to classified information up to and including SECRET for this project.

A written report describing your methodology, findings and recommendations should be submitted within 30 days of completion. The description of your evaluation methodology should be in sufficient detail to allow this headquarters to adapt it to later reviews of other courses experiencing similar problems.

Sincerely,

PAUL F. GORMAN
Major General, GS
Deputy Chief of Staff
for Training

Dr. Meredith P. Crawford
President
Human Resources Research Organization
300 North Washington Street
Alexandria, Virginia 22314

ATTNG-SC-A

Copies furnished:
Commander, USAICS
Dr. Howard McFann
Director
Western Division
Human Resources Research Organization
27857 Berwich Drive
Carmel, CA 93921

APPENDIX B

Graduation Criteria

GRADUATION CRITERIA
INTELLIGENCE ANALYST (ENLISTED) COURSE (CE)
MOS: 96B20

ATSI-TEM-E

20 May 1975

1. Tests of tasks critical to field entry performance requirements.

<u>EXAM UNIT NR/ TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
28021 Map Reading PT Part I	A	Extract and use marginal info from a 1:50,000 scale map	4 of 5 actions	5
	B	Determine the Representative Fraction (RF) of maps of unknown scale using a DMA map of the same area	2 of 3 actions	3
	C	Determine distances using the Graphic Bar Scale to within 100 meters or 2% of the distance measured, whichever is greater	2 of 3 actions	3
	D	Determine elevations to the correct $\frac{1}{2}$ contour interval	2 of 3 actions	3
	E	Identify topo features on a DMA 1:50,000 scale map, given UTM coordinates	2 of 3 actions	3
28021 Map Reading PT Part II	F	Determine percent of slope to within 2% on a 1:50,000 DMA map	2 of 3 actions	3
	G	Convert azimuths to other type azimuths, to within the accuracy of the azimuth given	2 of 3 actions	3
	H	Locate unknown points to within 100 meters using intersection, resection, and polar coordinates	4 of 5 actions	5
	I	Convert UTM coordinates to geo-coordinates to within three arc seconds on a 1:50,000 map	2 of 3 actions	3
	J	Convert geo-coordinates to UTM coordinates to within 100 meters on a 1:50,000 map	2 of 3 actions	3

EXAM UNIT NR/ TITLE	EXAM SECT	CRITERION ACTION ELEMENT	FIELD ENTRY STANDARD	MAXIMUM GRADUATION POINTS
69825 Enemy Capabil- ities	A	Committed and Rein- forcing Units	13 of 15 actions	15
	B	Aggressor FM's	12 of 15 actions	15
	C	Line and Block Chart	11 of 13 actions	13
	D	Aggressor Unit Symbols	7 of 10 actions	10
69835 Processing				
69835-A Intel Journal	A	Record info in Intel Journal	7 of 9 actions	9
69835-B En Sit Map	B	Plot info on En Sit Map to within 100 meters	15 of 28 actions	28
69835-C Intel Workbook	C	Record info in Intel Workbook	15 of 18 actions	18
69835-D Pertinence and Dis- semination	D	Present/future need of info	4 of 5 actions	5
	E	Determine to whom perti- nent info is to be disseminated	4 of 5 actions	5
69835-E Reliability and Accuracy Ratings	F	Determine the Reliability of a Source or Agency	4 of 5 actions	5
	G	Determine the Accuracy of info	4 of 5 actions	5
	H	Justify your Reliability/ Accuracy Ratings	4 of 5 actions	5
69835-F Order of Battle Files	I	Unit Identification	4 of 4 actions	4
	J	Summary Table	3 of 4 actions	4
	K	Unit Personnel Strength Log	1 of 2 actions	2
	L	Unit Weapons and Equip- ment Strength Log	3 of 4 actions	4
	M	Unit Personality Table	1 of 2 actions	2
69815 Collec- tion Plan	A	Determine Indicators	3 of 5 actions	5
	B	Determine Orders and Requests	3 of 5 actions	5
	C	Task Collection Agencies	3 of 5 actions	5
69850 Intel Reports	A	Complete an Intel Annex	7 of 10 actions	10

EXAM UNIT NR/ TITLE	EXAM SECT	CRITERION ACTION ELEMENT	FIELD ENTRY STANDARD	MAXIMUM GRADUATION POINTS
38900 Document Control and Account- ability	A	Mark Classified Documents	4 of 4 actions	4
		1. Mark pages correctly	(1 of 1)	(1)
		2. Mark paragraphs correctly	(1 of 1)	(1)
		3. Mark sections correctly	(1 of 1)	(1)
		4. Mark Titles correctly	(1 of 1)	(1)
	B	Account for Classified Documents	3 of 3 actions	3
	C	Comply with Access Roster	1 of 1 action	1
	D	Maintain DA Form 672	3 of 4 actions	4
69855 Combat Intel Production				
69855-A Intel Estimate	A	Complete Paragraph 3B (Composition)	4 of 5 actions	5
	B	Complete Paragraph 3C-1 (Committed Forces)	1 of 1 action	1
	C	Complete Paragraph 3C-2 (Rein)	2 of 2 actions	2
	D	Complete Paragraph 3D (Activities)	7 of 10 actions	10
	E	Complete Paragraph 4A (Enumeration)	5 of 7 actions	7
	F	Complete Paragraph 4B (Analysis and Discussion)	5 of 7 actions	7
	G	Complete Paragraph 5B (Probable Course of Action)	1 of 1 action	1
69855-B INTSUM	H	Complete Paragraph 1 (Issuing Unit)	1 of 1 action	1
	I	Complete Paragraph 2 (Date/Time of Issue)	1 of 1 action	1
	J	Complete Paragraph 3A-G (Summary of Enemy Activity)	11 of 14 actions	14
	K	Complete Paragraph 4 (Personnel/Equipment Losses)	3 of 4 actions	4
	L	Complete Paragraph 6 (Admin Activity)	3 of 5 actions	5
	M	Complete Paragraph 7 (New Identifications)	10 of 15 actions	15

<u>EXAM UNIT NR/ TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
69855-B (Cont)	N	Complete Paragraph 8 (Enemy Movement)	3 of 4 actions	4
	O	Complete Paragraph 9 (Estimated Number and Types of Vehicles)	1 of 1 action	1
	P	Complete Paragraph 11 (Capabilities and Vulnerabilities)	3 of 4 actions	4
	Q	Complete Paragraph 12 (Conclusions)	1 of 1 action	1
69855-C Analyze Info	R	Analyze Information	7 of 10 actions	10

2. Academic Criteria for Graduation:

a. Achievement of the field entry standard for each criterion action element listed in paragraph 1 above.

b. Achievement of a minimum typing speed of 20 words per minute utilizing the touch-typing method. A student failing to achieve 20 words per minute will be retested until he can accomplish the requirement.

c. Any student who, in the judgement of the Department Director does not demonstrate an acceptable degree of objectivity, tact, discretion, judgement, appearance, demeanor, personal standards, conduct, maturity, or motivation will be referred to the Deputy Commandant for Training and Education with recommended disposition.

3. Special Criteria for Graduation: Attainment of the minimum standard on the Physical Fitness Test as prescribed by USAICS Memo 632-1.

4. Academic Retest Policy:

a. A student failing 8 criterion action elements listed in paragraph 1 above will receive one retest for each of the failed criterion action elements. A student failing 9 or more criterion action elements will be ineligible for retesting without the approval of the Department Director. If the Department Director elects not to permit additional retests, the student will be referred to the Deputy Commandant for Training and Education with recommended disposition.


b. A student passing the retest will retain the original grade he earned on the failed criterion action element and will be allowed

to continue the course. A student failing the retest will be considered substandard and handled in accordance with paragraph 6 below. Retest results will be reported to Academic Records Division only as "Pass" or "Fail."

5. Class Standing: Field Entry Standard and Maximum Graduation Points columns in paragraph 1 provide the range of graduation points which can be earned for each criterion action element. Class standing is derived from cumulative graduation point attainment in those criterion action elements listed in paragraph 1.

6. Substandard Performance: A student who fails to meet the graduation criteria of paragraph 2 will be referred by the Department Director to the Deputy Commandant for Training and Education with recommended disposition. A student who fails to meet the graduation criterion of paragraph 3 will be referred to USAICS Commander for disposition.

7. These criteria will become effective with class 75-CE-8.


GEORGE M. HODGES
Colonel, FA
Deputy Commandant for
Training and Education

GRADUATION CRITERIA
INTERROGATION COURSE (CH)
241-96020

ATSI-TEM-E

24 September 1974

1. Tests of tasks critical to field entry performance requirements.

<u>EXAMINATION UNIT NR/TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
65830 Planning & Preparation & Approach Phases PT	A	Plan and prepare for an interrogation	15 of 19 actions	19
	B	Use approach techniques	2 of 4 actions	4
65840 Record- ing & Report- ing Phase PT	A	Prepare written spot report	4 of 6 actions	6
	B	Include spot report in follow-up report- prepare Tactical Intg Report	10 of 13 actions	13
65850 Question- ing Termination Phase PT	A	Questioning Phase	7 of 10 actions	10
	B	Map Tracking	7 of 10 actions	10
	C	Termination Phase	4 of 5 actions	5
65870 Interro- gation PT	A	Conduct Interrogation, ** PHASE I		130
		Planning & Preparation	7 of 10 actions	
		Approach Techniques	3 of 4 actions	
		Composition	16 of 23 actions	
		Dispositions	17 of 22 actions	
		Missions	7 of 12 actions	
		Logistics	18 of 25 actions	
		Miscellaneous	20 of 29 actions	
		Termination	4 of 5 actions	
	B	Conduct an Interrogation, ** PHASE II		149
		Planning & Preparation	7 of 10 actions	
		Approach techniques	3 of 4 actions	
		Composition	15 of 21 actions	
		Dispositions	17 of 22 actions	
		Mission	9 of 13 actions	
		Logistics	16 of 23 actions	
		Miscellaneous	30 of 51 actions	
		Termination	4 of 5 actions	

<u>EXAMINATION UNIT NR/TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MINIMUM GRADUATION POINTS</u>
65870 (Cont)	C	Conduct an Interrogation, ** PHASE III		184
		Planning & Preparation	7 of 10 actions	
		Approach techniques	3 of 4 actions	
		Composition	32 of 42 actions	
		Dispositions	22 of 29 actions	
		Mission	12 of 17 actions	
		Logistics	23 of 31 actions	
		Miscellaneous	35 of 46 actions	
		Termination	4 of 5 actions	

**Field Entry Standard is to correctly perform the minimum number of actions indicated for each of the eight components.

2. Academic Criteria for Graduation:

a. Achievement of the field entry standard for each of the criterion action elements listed in paragraph 1 above.

b. Achievement of the field entry standard for each of the six criterion action elements in the Map Reading Test, Unit 28006.

c. Attainment of the typing speed of 20 words per minute.

d. Demonstration of the motivation, attitude, and maturity necessary to perform competently in the field.

3. Special Criteria for Graduation: Achievement of the minimum standard on the Physical Fitness Test as prescribed by USAICS Memo 632-1.

4. Retest Policy:

a. Eligibility: A student failing one or two criterion action elements listed in paragraph 1 will receive one retest for each criterion action element failed. A student failing a third, or more, criterion action elements may not be retested without the approval of the Director, Department of Exploitation and Counterintelligence.

b. Scoring: A student passing the retest will retain the grade earned on the failed criterion action element but will be allowed to continue the course. Should a student fail the retest, he will be handled in accordance with paragraph 6 below. Retest results will be reported to Academic Records Division only as "Pass" or "Fail."

c. Map Reading Test, 28006: A student will receive one retest for each criterion action element failed. At the discretion of the Director, Department of Exploitation and Counterintelligence a second retest of failed criterion action elements may be given.

d. Typing: A student failing to attain the prescribed typing speed of 20 words per minute will be given up to two retests.

e. Exam 65870: A student failing any of the eight components within exam section A, B, or C will be retested on all eight components of that section. Failure to achieve the prescribed minimum number of actions for any of its eight components, whether initially passed or not, will constitute failure of the retest.

5. Class Standings: Class standings are derived from the cumulative attainment of graduation points for each of the criterion action elements listed in paragraph 1 above. Although not contributing points toward class standings, typing speed attainment and satisfaction of Exam 28006, Map Reading are requirements for graduation.

6. Substandard Performance:

a. A student who fails to meet the Graduation Criteria of paragraph 2 above will be referred by the Director, Department of Exploitation and Counterintelligence to the Deputy Commandant for Training and Education with recommended disposition.

b. A student failing to meet the Graduation Criterion of paragraph 3 above will be referred to the Commander.

7. These criteria become effective with Class 75-CH-3.

For Signature: L. Murray, LTC ME
GEORGE M. RODGERS
Colonel, FA
Deputy Commandant for
Training and Education

GRADUATION CRITERIA
IMAGERY INTERPRETER (CB)
242-96D20

ATSI-TEM-E

21 April 1975

1. Tests of tasks critical to field entry performance requirements.

<u>EXAM UNIT NR/ TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
61922 Photo- grammetric Principles	A	Compute problems concerning whole numbers and decimals	10 of 15 actions	15
	B	Compute problems concerning fractions	10 of 15 actions	15
	C	Compute algebra problems	10 of 15 actions	15
	D	Compute geometry problems	10 of 15 actions	15
28031 Map Reading Part I	A	Extract and use marginal information from a 1:50,000 scale map	4 of 5 actions	5
	B	Determine the Representative Fraction of maps of unknown scale using a DMA map of the same area	2 of 3 actions	3
	C	Determine distances using the Graphic (Bar) Scale to within 2% of the distance measured	2 of 3 actions	3
	D	Determine elevations to the correct 1/2 contour interval	2 of 3 actions	3
	E	Identify topographical features on a DMA 1:50,000 map, given three sets of UTM coordinates	2 of 3 actions	3
28031 Map Reading Part II	F	Determine percent slope to within 2% on a 1:50,000 DMA map	2 of 3 actions	3
	G	Convert azimuths to other type azimuths to within the accuracy of the azimuth given	2 of 3 actions	3
	H	Locate unknown points to within 100 meters using methods of intersection, resection, and polar coordinates	4 of 5 actions	5

<u>EXAM UNIT NR/ TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
28031 Part II (Cont)	I	Convert UTM coordinates to geographic coordinates to within three arc seconds (3") on a 1:50,000 map	2 of 3 actions	3
	J	Convert geographic coordinates to UTM coordinates to within 100 meters on a 1:50,000 map	2 of 3 actions	3
61910 Overlay Prep	A	Plot locations/positions	28 of 40 actions	40
	B	Register overlay	1 of 1 action	1
	C	Make entries in title block	7 of 10 actions	10
61925 Photo- grammetry	A	Make measurements on vertical aerial photos	14 of 20 actions	20
	B	Make computations using any method	14 of 20 actions	20
61265 II Reports	A	Check mission folder and prepare mission record	9 of 13 actions	13
	B	Prepare IPIR	3 of 5 actions	5
	C	Prepare ADP formatted IPIR	21 of 31 actions	31
61935 Plotting Aerial Photos	A	Plot vertical photo- graphy	30 of 44 actions	44
	B	Plot oblique photo- graphy	10 of 15 actions	15
61245 TIIF	A	Make measurements using AR-85	9 of 12 actions	12
61255 TAIMS	A	Maintain maintenance records	3 of 4 actions	4
62805 LOC and Terrain	A	Prepare trafficability and terrain analysis study	2 of 4 actions	4
	B	Interpret enemy LOC	7 of 10 actions	10
	C	Select EZ into AO	5 of 8 actions	8
62850 TAC ID	A	Functionally analyze military installations	7 of 10 actions	10
	B	Determine organization level of military units	2 of 3 actions	3
	C	Identify equipment	17 of 25 actions	25

<u>EXAM UNIT NR/ TITLE</u>	<u>EXAM SECT</u>	<u>CRITERION ACTION ELEMENT</u>	<u>FIELD ENTRY STANDARD</u>	<u>MAXIMUM GRADUATION POINTS</u>
62870 IR Inter- pretation	A	Identify and interpret IR Imagery	7 of 10 actions	10
62880 SLAR Inter- pretation	A	Identify and interpret SLAR Imagery	7 of 10 actions	10

2. Academic Criteria for Graduation:

a. Achievement of the field entry standard for each criterion action element listed in paragraph 1.

b. Demonstration of the necessary motivation, aptitude, and maturity to perform competently in the field.

c. II Notebook: The student will be awarded from 0-10 graduation points based upon the quality of his II Notebook.

3. Special Criteria for Graduation: Attainment of the minimum standard on the Physical Fitness Test as prescribed by USAICS Memo 632-1.

4. Academic Retest Policy:

a. Eligibility: A student failing up to six criterion action elements listed in paragraph 1 above will receive one retest of each of the failed criterion action elements. A student failing seven or more criterion action elements will be ineligible for retesting without the approval of the Department Director.

b. Scoring: A student passing the retest will retain the grade he earned on the failed criterion action element and will be allowed to continue the course. A student failing the retest will be considered substandard and handled in accordance with paragraph 5 below. Retest results will be reported to Academic Records Division only as "Pass" or "Fail."

5. Class Standing: The Maximum Graduation Point column in paragraph 1 above provides the maximum number of graduation points which can be earned for each criterion action element. Class standings are derived from cumulative graduation point attainment for those criterion action elements listed in paragraph 1 and paragraph 2c above.

6. Substandard Performance:

a. A student failing to meet the graduation criteria of paragraph 2 will be referred by the Department Director to the Deputy Commandant for Training and Education with recommended disposition.

b. A student who fails to meet the graduation criteria of paragraph 3 will be referred to the USAICS Commander for disposition.

7. These criteria become effective with Class 75-CB-10.

George M. Rodgers, Lt. Col. MI
GEORGE M. RODGERS
Colonel, FA
Deputy Commandant for
Training and Education

MAP READING

1. BRIEF OF THIS INSTRUCTIONAL UNIT. This is a 4-hour unit of instruction on basic and advanced map reading using standard DMA map sheets. The unit is divided into two blocks of instruction, parts I and II.

2. PERFORMANCE TRAINING OBJECTIVE. As a result of this instruction the student will use a military map, in the classroom, to accomplish the following standards:

a. Part I.

(1) Extract and use marginal information from a 1:50,000 scale map 4 of 5 times (PI Texts 20190 and 20191).

(2) Determine the representative fraction (RF) of 2 of 3 maps of unknown scale, using a DMA map of the same area (PI Text 20192).

(3) Determine 2 of 3 distances using the graphic bar scales to within 100 meters or 2 percent, whichever is greater (PI Text 20192).

(4) Determine the elevation of 2 of 3 points to the correct one-half contour interval (PI Text 20193).

(5) Identify 2 of 3 topographic features on a 1:50,000 scale DMA map, given three sets of UTM coordinates (PI Text 20193).

b. Part II.

(1) Determine average percent of slope 2 of 3 times to within two percent on a DMA map (PI Text 20193).

(2) Convert 2 of 3 azimuths to other type azimuths to within the accuracy of the azimuth given (PI Text 20194).

(3) Locate 4 of 5 unknown points to within 100 meters using the methods of intersection, resection, and polar coordinates (PI Text 20195).

(4) Determine the geographic coordinates of 2 of 3 points to within three arc seconds (3"), given UTM grid coordinates on a 1:50,000 scale DMA map (PI Text 20196).

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(Supersedes AdvS 28050 dtd Jan 75)

AdvS
28050

(5) Determine the UTM grid coordinates of 2 of 3 points to within 100 meters, given geographic coordinates on a 1:50,000 scale DMA map (PI Text 20196).

3. PRECLASS ASSIGNMENT. Complete PI Texts 20190 through 20193 prior to your first class in map reading.

4. REQUIREMENT. None.

5. SPECIAL INSTRUCTIONS. Bring to class Programed Texts 20190 through 20197 and associated map sheets.

6. ISSUED WITH THIS ADVANCE SHEET. Programed Texts 20190 through 20197, FM 21-26, FM 21-30, FM 21-31, and maps L75232334, 150 INJ525, V778X70624, L70146636, L70146637, L70146536, and U798X39473 (stock numbers).

7. STUDENT OUTLINE. None.