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14. ABSTRACT

This report examines both the costs and potential benefits of the United States Special Operations Command's (USSOCOM) pilot program to pay U.S. Army Special Forces (SF) operations foreign language proficiency pay at lower proficiency levels than the Army's foreign language proficiency bonus program (FLPB). Currently, the Army pays soldiers when they obtain an Interagency Language Roundtable (ILR) proficiency Level of 2 or higher in reading and listening on the Defense Language Proficiency Test (DLPT). In contrast, the pilot program pays SF operators a Level 1 rate if they achieve at least a Level 1 in any two modalities. After examining the underlying logic of the incentive program, the need for an incentive, what benefits may accrue, and available pilot program data, the report recommends the pilot program be extended, but that significant changes should be made to the incentive structure. Specifically, the report recommends paying different amounts for different proficiency levels, paying for improvement, and paying a lump sum. Analyses suggests that implementing all the recommendations could provide a more effective incentive while also reducing costs per operator by up to 31.9 percent.

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United States Special Operations Command's Foreign Language Proficiency Bonus at ILR 1/1+: Initial Review and Recommended Changes to Improve Results and Lower Costs

SWA Consulting

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Executive Summary

This report examines the United States Special Operations Command's (USSOCOM) pilot program to pay U.S. Army Special Forces (SF) operators foreign language proficiency pay at lower proficiency levels than the Army's foreign language proficiency bonus program (FLPB). Currently, the Army pays Soldiers when they obtain an Interagency Language Roundtable (ILR) proficiency Level of 2 or higher in Reading and Listening on the Defense Language Proficiency Test (DLPT). In contrast, the pilot program pays SF operators a Level 1 rate if they achieve at least a Level 1 in any two modalities. The report recommends the pilot program be extended, but that significant changes should be made to the incentive structure.

The pilot program should be extended because not enough time has passed to allow a meaningful evaluation. The programs provides incentives to improve or maintain language proficiency, yet, due to the time-intensive nature of language learning, not enough time has passed where any meaningful change could have occurred. Even if the pilot program accelerates the learning process, it is unlikely that it would accelerate proficiency results to such an extent to be noticeable within a year. Further, the incentive has a number of barriers to effectiveness to overcome, including the operational and personnel tempo of the force, and the influence of other incentives offered for training in other areas (e.g., Jump Training). As such, with insufficient time allowed to see improvement and barriers competing for the limited time each Soldier has available, the program might not be appropriately positioned to succeed.

However, the report does find that changes to the incentive structure may better position the program for future success, both in improving language outcomes and reducing cost per Soldier. The current program's incentive structure is less than optimal from both psychological and cost perspectives. From a psychological perspective, it encourages proficiency maintenance versus improvement. From a cost perspective, it does not leverage improvement to reduce cost nor structural changes that have proven to lower costs. As such, the report recommends paying differentially for different proficiency levels (the original pilot pays the same amount regardless of proficiency level), paying for improvement, and paying via a lump sum versus monthly installments. Paying differentially provides incentives to actually improve performance versus simply maintaining current levels. Paying all individuals the same amount does not encourage them to put forth extra effort to attain higher levels. Simply, there is no point in expending any extra effort. Fortunately, this recommendation is already under consideration.

The current program does not require Soldiers to improve over time. Unfortunately, this communicates the acceptability of maintaining the status quo. Rather, it is desirable to communicate not only that improvement is desirable, but expected. Requiring improvement to continue to receive the bonus accomplishes this goal and saves money by refusing to reward those who do not increase their

proficiency. For example, when Soldiers are told they can receive a certain amount if they reach a certain proficiency level, but are not required to, this is perceived from an extra reward-to-effort view. However, when told that they will receive more, but that if they do not progress to the next level they will lose what they currently receive, it is communicated that progress is expected versus just encouraged.

Changing the payment to a lump sump provides a more psychologically meaningful reward, while allowing the government to reduce the total amount it spends. This spending reduction occurs due to people's willingness to accept less in total payment in order to receive a larger one-time payment versus smaller recurring payment. This is commonly referred to as a discount factor. Receiving $900 all at once is more salient versus receiving $100 per month that after the first occurrence mingles with other payroll items and loses salience. Also, the Soldier can imagine making more meaningful and salient monetary decisions (e.g., a piece of home furniture or a down payment on a motorcycle versus what after-taxes is little more than a cell phone payment).

In conclusion, these changes could create an incentive that is more likely to be effective from a psychological perspective and provide significant cost savings. In fact, the analysis suggests that implementing all the recommendations could reduce costs per Soldier by up to 31.9 %. Beyond these changes, the success of the program will be determined by the context. For example, if other bonuses are more attractive, service members do not have the time to pursue language learning, or learning opportunities are not provided, it is unlikely that any incentive program would be successful.

This project was conducted by SWA Consulting Inc. under a subcontract with CACI-WGI, Inc. (Subcontract# B11-114482; Prime# H92222-10-D-0017/0007; Sub-CLIN 0003AB). For questions or more information about the SOFLO and this project, please contact Mr. Jack Donnelly (john.donnelly@socom.mil). For specific questions related to data collection or this report, please contact Dr. Eric A. Surface (esurface@swa-consulting.com) or Dr. Stephen J. Ward (sward@swa-consulting.com).

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Introduction

The United States' national strategy and role in the world often requires the United States Military to operate in foreign countries. These operations range from direct conflict with an enemy combatant to advising and training allied forces. Whether it is being able to understand foreign combatants' communications, to build rapport during village stability operations, to give commands on operations with allied forces, or to explain how a particular weapon system works to an allied force, the ability to communicate in a foreign language is an important enabler of mission success. United States Special Operations Command (USSOCOM) and Special Operations Forces (SOF) operators are often called upon to conduct a variety of specialized missions around the world. The effectiveness of these missions benefits from the language, culture and region expertise of SOF personnel.

In particular, owing to its size and capabilities, the United States Army Special Operations Command (USASOC) and Army Special Operations Forces (ARSOF) are the ones called upon to meet these varied operational demands. Often, military planners rely on Special Forces (SF) operators because of their unique regional focus and associated cultural and language capability. In fact, the SOF document FM 3-05.20 (U.S. Department of the Army, 2001) calls intercultural communication, including language proficiency, a core competency, while another document points to "the unique SF skills in language qualification" (U.S. Department of the Army, 2010, p. 3-3). Therefore, developing and maintaining culture and language capability is a priority for SF and SOF in general.

While recognizing that military operations often require language skills, the U.S. Department of Defense (DoD) acknowledged it did not possess enough language capability. To combat this language capability gap, the DoD inaugurated the Foreign Language Proficiency Bonus (FLPB) to "significantly increase foreign language capability across the Department of Defense" and create a "cadre of language professionals operating at the highest levels of proficiency" (U.S. Department of Defense, 2007, p. 2); the FLPB replaced the previous Foreign Language Proficiency Pay (FLPP) program. The FLPB pursues its goals by monetarily rewarding DoD personnel for their foreign language proficiency level above an Interagency Language Roundtable (ILR) Level 2 in two modalities (i.e., listening, reading, or speaking). These incentives vary by both proficiency level above ILR Level 2 and by how the DoD categorizes specific languages.

Applying the same logic, USSOCOM and USASOC are endeavoring to improve ARSOF language capabilities by compensating SF operators for language proficiency levels below what the Army's current FLPB will pay (i.e., less than an ILR Level 2). As of May 2011, USSOCOM funded and the US Army established a pilot program to pay SF operators at a lower level of language proficiency (i.e., ILR Level

1) to determine whether these incentives can enhance proficiency levels (U. S. Department of the Army, 2011a, 2011b). At this point, USSOCOM has committed significant financial resources, and it has not been determined whether the benefits from this program warrant its continued existence.

As such, this report examined both the costs and potential benefits of the program that can be determined at this time. It examined the underlying logic of the incentive program, the need for an incentive, what benefits may accrue, and available pilot program data. Through this examination, the report offers two main recommendations to provide a better incentive, to reduce costs, to evaluate the program, and to achieve program goals:

- Continue the program
- Change the pilot program's incentive structure to include:
    - Differential pay
    - Pay for improvement
    - Lump sum pay

Background

As language-capable operators, SF Soldiers must demonstrate their language proficiency by obtaining a score of ILR Level 1 or above in two language modalities. The ILR scale measures functional language proficiency (i.e., what an individual can and cannot do with the language) and ranges from Level 0 (no proficiency) to Level 5 (native or bilingual proficiency). Although not technically part of the scale, those performing above a base level (e.g., ILR 1) but not at the next level are indicated with a plus sign and are commonly treated as separate levels (e.g., ILR 1+).

To obtain their proficiency levels, operators take either the Defense Language Proficiency Test (DLPT) or an Oral Proficiency Interview (OPI). These tests can provide ILR scores on reading, listening, and speaking modalities. For SOF, the OPI is now the preferred test because it more closely aligns with mission requirements. However, the DLPT is still used. Conventionally and in this report, scores are written for each test modality separated by a forward slash. For example, someone with a score of ILR Level 2 in two modalities would be indicated as 2/2, while someone with an ILR Level 2 in three modalities would appear as 2/2/2.

Pilot program rationale

Fundamentally, the foundations of the pilot incentive program are quite simple. First, SF operators require higher language proficiency levels than they currently maintain to complete their language-related mission tasks. Therefore, a language capability gap exists between the current and required states, and this

gap needs to be closed to ensure successful performance on missions. Second, operators can achieve and maintain the desired level of language proficiency. Since many operators achieve or exceed the standard in initial acquisition training (IAT), they should be capable of maintaining and enhancing with the commitment of effective learning time. Third, operators can be encouraged to invest the time to maintain standard and attain higher proficiency through the application of incentives.

SF operators need greater language proficiency

For SF operators to complete their missions successfully, they must perform above the current language proficiency standard, that is, an ILR Level 1. The 2010 *U.S. Army Special Forces Language Proficiency Requirements Needs Assessment* (SWA Consulting Inc., 2010f) revealed that most language-related tasks Army SF operators perform during missions require ILR Level 2 proficiency or higher for full, sustained performance (i.e., they can effectively perform the specific task as described for SF personnel). With an ILR Levels 2+, SF operators can fully perform all but one of these tasks. In contrast, only 22 of 213 language-related tasks could be fully performed with a proficiency of ILR Level 1. In sum, as ILR levels decrease, the number of language-related tasks SF operators can fully perform decreases until with ILR Level 1, they can fully perform only 10% of the language-related tasks.

The operators themselves have recognized this need for higher proficiency. Language and culturally capable SOF personnel are the first choice for optimum mission accomplishment (USSOCOM M 350-8); however, the 2009 SOF Language and Culture Needs Assessment (LCNA) Project identified gaps between the current and desired states of SF operator language capability. Most SF operators indicated they were not prepared to slightly prepared (57%) and found it very difficult to difficult (55%) to meet the language-related requirements on their most recent inside area of responsibility (AOR) deployment. Consistent with SOF operators, SOF leaders reported that their unit was not prepared to slightly prepared (47%) and found it very difficult to difficult (80%) to meet the language-related requirements on inside AOR deployments (SWA Consulting Inc., 2010c). The lack of preparedness and difficulty in meeting language-related mission requirements was even greater when SOF operators were deployed outside their AOR (SWA Consulting Inc., 2010d).

Since building rapport and communicating with the host nation is an integral part of mission success, SOF operators rely heavily on the use of interpreters to compensate for the language capability gap. Specifically, 81% of SOF operators are dependent to very dependent on interpreters when deployed inside their AOR and 87% are dependent to very dependent on interpreters when deployed outside their AOR. Additionally, many SOF operators (41% inside the AOR; 65% outside the AOR) indicated there is a 0%

likelihood they could successfully accomplish their missions without interpreters (SWA Consulting Inc., 2010e).

Using incentives to meet the need

To rectify this situation, the pilot program extends the logic of the Army's FLPB program by providing incentives to SF operators at an ILR Level 1/1. By extending incentives to lower proficiency levels, it seeks to encourage higher levels of language proficiency and improve performance of language-related mission tasks. Incentives can encourage people to begin practicing a skill, and often lead to a future improvement in performance (Bonner, Hastie, Sprinkle, & Young, 2000). Further, research done with ARSOF personnel finds that the early earning of skill-based pay (SBP), such as the previous DoD incentive program of FLPP, motivated further skill development, leading to higher rates of skill growth (Dierdorff & Surface, 2008). That is, ARSOF operators who received FLPP in their first attempt following IAT were more likely later to attain higher language proficiency.

Assuming these finding generalize to incentives provided at lower proficiency levels, below ILR Level 2/2, the pilot program seeks to capitalize on this early payment effect. Since, in most cases under the current system, SF operators' first attempt to qualify for FLPB occurs following IAT, lowering the proficiency requirement will cause more SF operators to qualify for a payment on their first attempt, as most demonstrate either ILR Level 1/1 (51%) or ILR Level 1+/1+ (39%) exit proficiency upon graduation from the U. S. Army John F. Kennedy Special Warfare Center and School (USAJFKSWCS).

This research also found that SF operators who received increasing pay amounts as their language proficiency improved were more likely to pursue more skill development and faster language proficiency gains (Dierdorff & Surface, 2008). Again, the pilot program capitalizes on this finding by providing payments smaller than Army FLPB payments at lower proficiency levels. The pilot program, as such, creates a potentially effective 'stepping stone' or 'step ladder' mechanism to accelerated language proficiency gain.

Program specifics

Currently, the pilot program pays SF operators a bonus of $100 a month if they demonstrate at least an 'elementary proficiency' (i.e., ILR Level 1/1) level for their primary or control language (see Table 1). Operators can earn up to another $100 per month if they can demonstrate the same level for a second deployment-related language[1]. No distinctions in pay amount are made for primary or control language level, that is, as long as the primary or control language is on the approved language list (see U. S.

[1] Defined as a "language supporting deployment for an overseas contingency operation" (p. 2) and "Soldiers must be within 9 months of deploying to be eligible" (U. S. Department of the Army, 2011b, p. 5).

Department of the Army, 2011b), Soldiers receive the same monetary incentive. However, payment amounts differ for those receiving an incentive for a deployment-related language. The difference in incentive for deployment-related languages is determined according to a language's designated payment list (see U. S. Department of the Army, 2011b).

Table 1 Pilot Program Monthly Payments

Language	Payment list "A"	Payment list "B"	Payment list "C"
Primary Language / Control Language	$100	$100	$100
Second language (Deployment-related)	$100	$50	$25

The pilot program will not pay more than $200 per month. In addition, the program will not pay for a language in which an operator is receiving a bonus from another program. When an operator crosses the ILR Level 2 threshold, in two modalities, the operator would, if they meet the requirements, transition to the Army's FLPB program.

Recommendation - Continue the pilot program

The pilot program was due to be evaluated following a year of existence. However, other than evaluating how well the program is administered, it is unlikely that any meaningful change will occur in such a short timeframe. This timeframe does not provide adequate time to determine whether the program is achieving its purpose of incentivizing improved language proficiency development due to several barriers that include:

- Insufficient time allowed for improvement to occur
- Operational and personnel tempo
- Competition for attention from other non-language bonus programs

Insufficient time allowed for improvement

To learn any skill requires time; this is particularly true for learning a foreign language. The Foreign Service Institute (FSI),the Defense Language Institute (DLI), and ASTM estimate that to reach an ILR Level 2/2 proficiency can take between 400 to 1,890 instructional hours depending upon language difficulty (ASTM, 2005; Clifford, 2006; FSI, 1973). As a language becomes increasingly different from

English, native English speakers take longer to acquire proficiency (Jackson & Kaplan, 2001; Jackson & Malone, 2009). Therefore, while a language like Spanish may take between 400 to 750 instructional hours, a language such as Arabic could take between 1,100 to 1,890 instructional hours. Keep in mind that an ILR Level 2 is considered "limited working proficiency" and even more time is required to reach higher levels of proficiency.

It is noteworthy that both the FSI and DLI time-outcome estimates reference instructional hours. SF Soldiers receive approximately 600 instructional hours during their IAT. Using FSI and DLI estimates, it would be expected that SF Soldiers could reach an ILR Level 2/2, but only in lower difficulty languages (e.g., Spanish). In fact, when post-training IAT test scores were examined from 3,396 Soldiers that graduated USAJFKSWCS between July 2009 and July 2012, 51 % achieved ILR Level 1/1, 39 % achieved ILR Level 1+/1+, and only 9 % achieved ILR Level 2/2 or above.

To attain higher language skill levels, according to the above estimates, would require significant additional instructional time. This time may or may not be available to SF operators through unit-sponsored, formal training programs to sustain and enhance language proficiency. If not available, that means SF operators would have to maintain and enhance their skills through independent, self-directed learning or self-study. A fundamental assumption of evaluating the impact of the FLPB policy within a year is that an enough time is allowed for the incentive's impact to influence test scores. In the case of unit-provided, formal learning opportunities, this improvement may be possible, if a substantial amount of training time was invested. However, it is unlikely that one year allowed sufficient self-study to 'move the needle' on the proficiency test, given operations and other competing training requirements.

In general, the incentive is likely to be more effective if the unit provides formal, structured training resources. Although research on second language acquisition (SLA) instruction is still relatively new (Doughty, 2003), Long (1983) found formal instruction to be useful for proficiency development, and with the limited research available, Doughty found that instructed language learners moved further toward "ultimate SL attainment" (2003, p. 262). From a pragmatic perspective, without further formal instruction, the time to acquire language proficiency may actually increase due to the structures inherent in formal instruction that may be advantageous to promoting learning. For example, one potential advantage is accountability. With formal instruction, learners are expected to attend lessons, do homework, and respond to instructor prompts and inquiries. Further, these things, typically, can be externally validated. In self-study or informal learning, learners are accountable to themselves and their goals, and there is rarely external validation or feedback on these goals. The individual learner must take it upon him- or herself to acquire learning opportunities and then maintain effort overtime through self-

discipline. Independent learning requires self-direction of learning activities. This alludes to another potential advantage of formal instruction, having an instructor to diagnose learning needs, direct learning, and provide feedback. Effective instructors should guide each learner to learning activities that are appropriate for the individual's proficiency level and learning goals. These instructors can diagnose learning issues and apply effective remedies to move students toward the next proficiency level. Self-study, in contrast, relies upon the learner knowing how to structure their learning activities effectively, to diagnose where they are having problems, and to apply potential solutions. While it is feasible for learners to direct and manage their own learning, it is unlikely that all learners can do so in an effective or efficient manner.

In theory, the pilot program should provide incentive for learners in formal or informal learning contexts. However, in practice, the motivational impact of the pilot program may be influenced by whether operators learn through self-study or through structured classes. Both methods are appropriate for skill development; however, operators are more motivated by the bonus when it is tied to formal classroom training (SWA Consulting Inc., 2010b). This report indicates this finding may be due to operators' assessment of whether self-study is sufficient to obtain the bonus. For example, research indicates that, although more resource-efficient, information learned through self-study, when compared to structured classroom study, is less likely to be retained over the long term (Bell, Fonarow, Hays, & Mangione, 2000). Operators that arrive at the same conclusion as the research would find the bonus less motivating if their only option is self-study. Self-study, in their view, would have less probability of succeeding and require too much effort for the bonus to be motivating.

Since sufficient time to develop or improve language proficiency is a key consideration in our discussion, it should be noted that FSI and DLI estimates were developed on populations that are unlikely to generalize clearly to the SF Soldier population. For example, the typical FSI student has higher language learning aptitude than the general population, and often knows more than one language prior to beginning their FSI assigned language (Clifford, 1987; Jackson & Kaplan, 2001). If the typical SF Soldier does not display the same characteristics, it is unlikely that the hour estimates accurately reflect the time he will require to acquire higher proficiency levels. For example, a study of USAJFKSWCS students' DLAB scores and their final ILR levels found that for those with the highest aptitude, only 25% would be expected to reach ILR Level 2/2 in the allotted training time (SWA Consulting Inc., 2012). Therefore, if more time is required for the SF population, it is even more unlikely that the pilot program's impact can be assessed within one year.

In summary, the program should be continued because insufficient time has passed to show that it can improve language learning. Based upon estimates of language learning times from populations that may be significantly different from SF Soldiers, without significantly more formal instruction, it is unlikely that an increase in operator proficiency would be seen in the pilot program's evaluation period. Further, whether due to other requirements or availability, if further instruction is not possible, Soldiers have to rely upon informal learning, potentially increasing the required learning time due to inefficiencies and operators' assessment of whether informal methods are sufficient to achieve worthwhile proficiency gains.

High operations and personnel tempo

As mentioned in the previous section, an investment of sufficient time is required to develop, maintain and improve language proficiency. For evaluation, sufficient time must be given to allow for the program to have an impact and that impact to be detected. Since the pilot program's implementation, even if a year was sufficient time for language learning to occur and be measured, SF personnel have had limited time to engage in language learning activities (e.g., self-study, formal training) due, in part, to operations tempo (OPTEMPO), outside AOR deployments, and competing training requirements. Unfortunately, this is a consistent challenge for SF and SOF personnel. In *Barriers to Language Acquisition and Maintenance* (SWA Consulting Inc., 2010a), SF personnel indicated that time/OPTEMPO, outside AOR deployments[2], and competing training requirements pose moderate to extreme barriers to language acquisition and maintenance. One of the challenges for any incentive is overcoming contextual barriers. In designing incentive programs, other policies and the context need to be considered. The current context makes it unlikely that the pilot program has had sufficient time to show an impact.

A related issue is the need to ensure that Soldiers are not overloaded. Together, the above barriers suggest an overall increase in personnel tempo (PERSTEMPO)[3], or the amount of time SF personnel spend away from home on official duties. This makes sense given that, as operations increase, outside AOR deployments and subsequent pre-deployment training requirements increase, thus increasing the number of days SF personnel spend away from home base and leaving little time for studying the primary AOR language. PERSTEMPO is likely to impact the perceived value of any monetary incentive. In low PERSTEMPO situations, Soldiers are more likely to perceive the value of an incentive because their time

[2] Identified as a barrier by most SF operators because deploying outside his official AOR means the operator is most likely in a country where the language is different than his official, trained language and he is focused on a new language and culture.

[3] Defined as "the amount of time members of the armed forces are engaged in their official duties, including official duties at a location under circumstances that make it infeasible for a member to spend off-duty time in the housing in which the member resides when on garrison duty at the member's permanent duty station" (10 U.S.C. §487, 2012, p. 209).

to invest in formal or informal training is more readily available. In high PERSTEMPO situations, the value of their limited time increases and an incentive may lose its impact, especially in relationship to other competing priorities or incentives. Again, given the PERSTEMPO during the implementation of the pilot program, there has likely not been sufficient time for the incentive program to impact proficiency levels.

Competing bonuses

> *I make $150/month by spending on average 1 hour per month jumping out of an airplane. Compared to the effort to develop language proficiency, FLPB isn't worth my personal free time…*
>
> *SOF Leader, USASOC*

The above quote points to the fact that individuals make decisions about the areas in which they wish to exert effort. Further, often a principle factor driving these decisions will be the reward that they expect to achieve for the effort required. In comparison to other compensable SOF skills (e.g., staying jump qualified), language learning is unique in that it requires a large sustained cognitive effort over a great period of time to develop, maintain and improve. For comparison, to receive the jump pay mentioned in the quote, Soldiers attend three weeks of jump school, and then must jump once every three months. In contrast, to obtain the pilot program pay levels, SF operators will have attended 18 to 24 weeks of training. The majority of SF Soldiers, after this training, reach only the entry level of the pilot program (i.e., ILR 1/1).

It must be realized that operators have limited resources and will place them where they get the most benefit. Some skills, such as language, require more time to develop, maintain and improve and are more difficult and less exciting to demonstrate (i.e., testing all day with the DLPT in contrast to jumping out of an airplane). If most operators agree with the above quote, little improvement can be expected from the pilot program. More importantly, decision makers need to determine whether the incentives offered reflect the skills the force needs now and in the future and their relative value. It is beyond the scope of this report to determine the relative criticality and value of skills, but the impact of the incentive will depend on the operators' perceptions of the value of the program's effort-reward ratio, which is evaluated in comparison to completing priorities and incentive opportunities within the time available.

Recommendation - Change the pilot program's incentive structure

To increase the probability of the pilot program increasing SF operators' language proficiency, the pilot program should make changes that provide an incentive to improve. Further, the program should attempt to maximize its potential return by reducing the cost of the program. Both improving the incentive potential and reducing cost can be accomplished by changing the incentive structure in the following ways:

- Pay different amounts for different proficiency levels
- Pay for improvement
- Pay a lump sum

Pay different amounts

The pilot program, in its current form, pays the same amount for each language regardless of the ILR level an operator attains (i.e., pays the same for ILR 1/1, ILR 1/1+ and ILR 1+/1+). Paying the same amount no matter the level is problematic from both organizational and operator perspectives. Organizationally, USSOCOM wants higher levels of proficiency, yet paying equally no matter the proficiency level does not communicate this desire. Incentive programs should match the desired goal. Further, the pilot program can be viewed as an extension and stepping-stone into the Army's FLPB program. As such, the pilot should attempt to integrate with the Army's program by recognizing plus levels (i.e., 1+) in its payment scheme. Paying differentially not only encourages USSOCOM's desired result, it provides a smooth transition into the Army's program.

From an operator's perspective, the pilot asks them to expend extra effort to acquire a higher level of proficiency for no increase in compensation. From both an economical and psychological perspective, it makes the most sense for the operator to choose to remain at the level they attained after IAT. In fact, unless an operator finds the Army's FLPB program (i.e., starting at ILR 2/2) sufficiently motivating, the pilot program encourages operators to maintain their post-IAT level, which for most recent graduates is ILR 1/1. The incentive structure might signal to SF Soldiers who graduated with ILR 1+/1+ that they can coast and not invest effort in maintaining their plus level.

Paying differential amounts, however, will increase the programs cost to USSOCOM, at least in a short period. Over a longer period, if the program is successful at improving proficiency, the cost should decrease as Soldiers reach ILR 2/2 and transition into the Army's FLPB program. In theory, this change to the program should also decrease the need for interpreters over the long term as proficiency levels increase and, therefore, reduce the associated costs, although the exact reduction is difficult to quantify.

Fortunately, the government has recognized this issue and has drafted new guidelines for this program (DoDI 1340.hh, 2012, used with permission). When these guidelines go into place Soldiers will receive $100 per month at the 1/1 level and $150 per month at the 1+/1+ level. Since this is the proposed new standard, it will be used for all further cost comparisons.

Pay for improvement

Presently, the language requirements for an SF Soldier provides a strong motivator for them to maintain at least an ILR 1/1 level of proficiency. That is, the job requires SF Soldiers to maintain this language proficiency and improvement be considered in promotion decisions. Since this requirement maintains the ILR 1/1 base level of language proficiency, any incentives systems should aim to improve upon this level of language capability by incentivizing higher levels of proficiency attainment.

To align the incentive system with this implied goal, two changes should occur. First, as mentioned previously, pay differing amounts. Second, require SF Soldiers to improve to continue to receive incentive payments. Specifically, to continue to receive incentive payments, Soldiers must demonstrate improved proficiency within a certain period of time. If they fail to improve in a reasonable time, they stop receiving payments. This idea is not without precedent. The United States Air Force (USAF), when payment is authorized for language proficiency below 2/2, requires Airmen to demonstrate annual improvement. Moreover, they cannot continue to receive payments, for sub 2/2 proficiency, for more than two to three years depending on language category (U.S. Department of the Air Force, 2012). This USAF policy communicates that continued improvement is valued and ILR 2/2 is the critical base level of language and attempts to provide an incentive ladder to help the learner move from lower levels of proficiency to the desired ILR 2/2 level.

While cash bonuses can serve as a motivator, the threat of losing such bonuses can have an even stronger effect. Loss aversion research indicates that the threat of a loss has been shown to be up to twice as impactful as a potential gain (Tversky & Kahneman, 1991). This finding has significant implications for pay structures in organizations, as the manner in which a pay structure is framed to employees can influence their behaviors. When a bonus is framed as a potential loss that employees will experience if performance lacks, they are more likely to work harder to achieve it (Merriman & Deckop, 2007). Further, it communicates that improvement is not only expected, but that it is normal. In contrast, incentives for improvement communicate that improvement requires beyond normal performance. The ideal pay structure would leverage both the motivating characteristics of a bonus and the threat of loss if performance fails to meet certain standards.

Pay a lump sum

The pilot program pays qualified service member $100 per month. While not an insignificant amount, it does not have the same impact as receiving a larger amount at one time. The purchasing power of a $100 per month for a year is greater than receiving $1000 at one time, but the way in which the money is used and perceived is different. Economic studies show that people typically will choose a smaller one time total payment over a larger total payment that is paid in smaller recurring payments (Frederick, Loewenstein, & O'Donoghue, 2002). Specifically, research in military contexts (Warner & Pleeter, 2001) has found lump sum pay structures can be both less expensive for the funding source and potentially more motivating for the recipient. This research finds that military personnel have a high discount rate, which is the "rate at which individuals trade current for future dollars" (Warner & Pleeter, 2001, p. 33). For example, during the military force reductions of the 1990s, more than 60,000 troops were offered the choice between an annual separation payment and an immediate lump-sum disbursement. Although the annuity carried a higher overall cash value, the majority chose the lump sum, resulting in $1.7 billion of savings for the military (Warner & Pleeter, 2001). Further, these studies suggest that the total amount, when paid in lump sum, could be discounted up to 30 % depending on recipient characteristics, such as education and age, with most studies suggesting a discount rate of about 18% payments (Frederick et al., 2002).

In conclusion, this section argues that by making these three changes (differential pay, paying for improvement, and paying a lump sum) the motivational impact of the incentive will increase thus increasing the probability of language proficiency gains. Further, that these changes if instituted, could lead to substantial cost saving over the original program. The next section examines the costs implications for each of the recommended changes with varying proficiency improvement conditions .

Cost Analysis

This section presents a cost analysis on the varying recommendations this report suggests. For easy of analysis, to mitigate against significant changes in force size and variable personnel acquisition and attrition rates, the following scenarios examine what the cost would be with 1000 Soldiers over a five year period. The scenarios also assume that these 1000 Soldiers have language proficiency levels distributed between ILR levels 1 and 1+ in similar proportion to USAJFKSWCS IAT graduates at the end of training[4]. Further, the models attempt to use conservative assumptions concerning rates of improvement and typically discount factors to avoid overstating the findings. For reference only, Table 2 shows the cost

[4] Based on graduations from July 2009 to July 2012 where 51% achieved 1/1, 39% achieved 1+/1+, and only 9% achieved 2/2 or above

of the pilot program as originally specified with no improvement occurring. For the pilot program as originally specified, it would cost $1200 per Soldier who qualified per year.

Table 2 Pilot Program No Improvement

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	570	570	570	570	
	Cost	$684,000	$684,000	$684,000	$684,000	$684,000	$3,420,000
1+/1+	n	430	430	430	430	430	
	Cost	$516,000	$516,000	$516,000	$516,000	$516,000	$2,580,000
Total		$1,200,000	$1,200,000	$1,200,000	$1,200,000	$1,200,000	$6,000,000

Cost scenario 1 – DoDI proposed program change

Table 3 represents the cost of the implementation of DoDI 1340.hh assuming no improvement. DoDI 1340.hh differs from the pilot program by paying $100 for level 1/1 and $150 for level 1+/1+ whereas the pilot paid $100 irrespective of level. No improvement scenarios are modeled to demonstrate costs if the program fails to work as expected. This represents a 21.5 % cost increase over the pilot program with the cost per Soldier per year increasing to $1458. Yet, as argued earlier, we expect that differential pay will increase the likelihood of proficiency improvement.

Table 3 DoDI No Improvement

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	570	570	570	570	
	Cost	$684,000	$684,000	$684,000	$684,000	$684,000	$3,420,000
1+/1+	n	430	430	430	430	430	
	Cost	$774,000	$774,000	$774,000	$774,000	$774,000	$3,870,000
Total		$1,458,000	$1,458,000	$1,458,000	$1,458,000	$1,458,000	$7,290,000

One study on the effectiveness of FLPB found that approximately 50 % improved one-half level in a two-year period (Golfin, Wolfanger, Clemens, & Griffis, 2012). However, this study examined those with ILR level 2/2 and above. Since this program targets lower proficiency levels, a faster rate could occur, but to be conservative an equivalent yearly rate was used. As such, Table 4 shows the cost of the DoDI implementation assuming that a quarter of the Soldiers improve one-half level per year. For example, in Year 1 the model assumes that 250 Soldiers will move one-half level. The model further assumes that these Soldiers will move proportional to the number of Soldiers in a particular level. For example, in Year 1 more Soldiers will move from 1/1 to 1+/1+ than from 1+/1+ to 2/2. As Soldiers move to 2/2, they are

removed from the cost base as they transition into the Army's FLPB system. From this, the cost per Soldier per year drops from $1458 to $1191, or an 18% decrease.

Table 4 DoDI 25% Improve 1/2 Level per Year

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	428	321	240	180	
	Cost	$684,000	$513,000	$384,750	$288,563	$216,422	$2,086,734
1+/1+	n	430	465	456	422	377	
	Cost	$774,000	$837,000	$820,125	$759,375	$677,742	$3,868,242
Total		$1,458,000	$1,350,000	$1,204,875	$1,047,938	$894,164	$5,954,977

Due to uncertainty concerning average rate of proficiency improvement a Monte Carlo simulation was run. When uncertainty exists around input variables of interest it is common to present a mostly likely case and a worst and best case. Oftentimes, worst and best cases simply take the most likely case and add or subtract an amount from the uncertain variable (e.g., 25% higher or lower). Monte Carlo simulation vastly improves upon this idea by allowing calculations across the entire range of uncertainty taking into account the likelihood of the variable of interest occurring at each particular value. In this particular case, the average improvement rate was assumed to vary from no improvement to a third of all Soldiers improving a half-level per year. The most likely scenario, as in Table 4, was assumed to be a quarter of all Soldiers improving a half-level per year. Probabilities of rates being above or below the most likely level decreased in a straight line fashion (i.e., a triangular distribution). Using this, 1000 cases were randomly drawn resulting in 80% of cases total 5-year costs falling between $5.7 and $6.8 million, or cost per Soldier per year between $1146 and $1360.

Cost scenario 2 – Paying a lump sum

Next, implementing a lump sum payment system, while potential increasing the motivational impact, can have a significant impact upon the cost of the program. Table 5 shows the cost over five years with the implementation of a lump sum payment with a 15% discount factor and an improvement rate of 25 %. While prior research (Frederick, Loewenstein, & O'Donoghue, 2002), suggests in most cases an 18% discount factor could be used a lower rate was chosen to be conservative. By comparing this scenario (Table 5) to the recurring payment scenario (Table 4), we see a 15% cost decrease and an annual cost per Soldier of $1012. When including the variability in average proficiency improvement as before, we find the annual cost per Soldier to run between $974 and $1156. Obviously, the size of the discount factor can dramatically control the cost of the program. Yet, if the discount applied is too high, the potential motivating impact of the incentive will be lost.

Table 5 DoDI with Lump Sum Payments (15% discount factor)

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	428	321	240	180	
	Cost	$581,400	$436,050	$327,038	$245,278	$183,959	$1,773,724
1+/1+	n	430	465	456	422	377	
	Cost	$657,900	$711,450	$697,106	$645,469	$576,081	$3,288,006
Total		$1,239,300	$1,147,500	$1,024,144	$890,747	$760,039	$5,061,730

Cost scenario 3 – Pay for improvement

Table 6 represents a cost model where Soldiers have a specific amount of time to improve or they will no longer receive payments. Similar to earlier models, this model assumes that 25 % improve a half level annually. In contrast to earlier models, this model allows Soldiers three years to improve as a conservative time for improvement to appear. This is clearly seen in Year 4 when those who have remained at level 1 or 1+ for three years are removed. There is a 19.9% cost reduction in comparison to the DoDI 1340.hh model with assumed improvement (Table 4)and a 5.8% cost reduction over the lump sum scenario (Table 5). Annual cost per Soldier is $954 with an 80% confidence range of actual cost between $935 and $959 based on variability in proficiency improvement.

Table 6 DoDI with Pay for Improvement

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	428	321	0	0	
	Cost	$684,000	$513,000	$384,750	$0	$0	$1,581,750
1+/1+	n	430	465	456	240	180	
	Cost	$774,000	$837,000	$820,125	$432,844	$324,633	$3,188,602
Total		$1,458,000	$1,350,000	$1,204,875	$432,844	$324,633	$4,770,352

This analysis suggests that paying for improvement effectively caps the upper end of costs and reduces the cost variability associated with unknown rates of improvement. However, this model assumed that once removed, Soldiers did not re-qualify through re-testing at a higher level. Consistent with the programs goals, it makes sense to allow Soldiers to re-qualify in which case the costs would approach those of cost scenario 1 where Soldiers improve, but are not removed for a failure to do so.

Cost scenario 4 – Pay for improvement and lump sum

In the last scenario, Table 7 displays the results when 25 % of Soldiers improve a half-level annually, and both lump sum (at 15 % discount) and pay for improvement polices are implemented. Comparing scenarios, we see a decrease of 31.9 % over the base scenario (Table 4), a decrease of 19.9 % over the

lump sum only scenario (Table 5), and a 15 % decrease over the pay for performance scenario (Table 6). Allowing for variation in the average proficiency improvement suggests an annual cost per Soldier of between $794 and $815.

Table 7 DoDI with Pay for Improvement and Lump Sum Payments

		Year 1	Year 2	Year 3	Year 4	Year 5	Total
1/1	n	570	428	321	0	0	
	Cost	$581,400	$436,050	$327,038	$0	$0	$1,344,488
1+/1+	n	430	465	456	240	180	
	Cost	$657,900	$711,450	$697,106	$367,917	$275,938	$2,710,311
Total		$1,239,300	$1,147,500	$1,024,144	$367,917	$275,938	$4,054,799

Conclusion

If SF operators are going to be encouraged to improve their language proficiency through incentives, the current program needs to continue and be restructured to provide time to demonstrate an impact and to increase the likelihood of success. Further, the cost analysis of paying for improvement and paying in lump sum form, both individually and in combination could provide significant cost savings over current policy. The numbers used in these analysis (discount rate, time to improvement) represent good research based starting points. However, with implementation other factors should be considered, such as budgetary constraints that may require shorter time to improvement or greater discount factors. It should be noted that decreasing or increasing these numbers beyond certain level while improving the cost structure will diminish motivational impacts of the incentive program.

For policy makers, the program provides a simple metric for whether it is working or not in the form of cost per Soldier. With improvement, Soldiers move out of this program when then score 2/2 or above and the cost decreases. However, in calculating this metric, acquisition and attrition rates need to be considered. With consistent acquisition and attrition rates, no issue occurs, but spikes would cause cost per Soldier costs to increase or decrease regardless of actual proficiency improvement rates. So, cost per Soldier metric needs to be assessed in relation to proficiency acquisition and attrition trends.

In addition, the program should monitor improvement rates of Soldiers over several years. At this point, for the reasons mentioned it is unlikely that any change will have occurred, plus not enough data exists to make a reasonable determination. This monitoring could allow for the determination of optimal time for improvement allowances and discount factors. Considering the time it takes to improve language proficiency, any improvements in terms of proficiency due to the program will not be visible for three to five years. This relatively short time should allow a proper evaluation of the program. Further, other

secondary characteristics will have an opportunity to occur. These could include improved attitudes toward language learning, increased command attention, and protected training time.

Lastly, this paper examined the pilot program primarily in isolation. The program, if successful, would have second order effects the main one being, of course, greater mission effectiveness. However, some of these effects may be unanticipated. For example, if operators perceive the program to be motivating, it is likely they would seek out learning opportunities. This would create a greater demand for language training programs and resources. Policy makers would then need to decide whether to increase funding and thereby potential costs. If opportunities are not provided, Soldiers may then decrease their perceived value of the program and it loses it motivating value. Alternatively, in deciding to focus on language proficiency, Soldiers spend less time on other activities. As such, policy needs to consider its language incentive system within both its greater language context and in the wider SF context.

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