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Student Reactions to a Team Project Incorporating Web-based Peer Evaluation

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Transfer of Language Proficiency Training in the Army Special Forces

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This study was conducted to determine if skills learned in foreign language training in the Army Special Forces transfer to language-related job performance. Commonly used proficiency skill assessments administered post-training were predictive of supervisory performance ratings, and speaking and listening proficiency were the language modalities with the highest relative importance.

In order to operate efficiently and effectively, today's military services and personnel must be able to communicate and interact with local populations from numerous regions all over the world. In recent years, there has been an increasing recognition of the importance of language capabilities, with several government reports highlighting the need for and value of foreign language proficiency. The 2005 Defense Language Transformation Roadmap (DLTR), 2006 Quadrennial Defense Review (QDR), and 2009 Government Accountability Office (GAO) report to congressional committees all stressed the importance of developing foreign language capabilities for both strategic and tactical purposes. This need is especially pronounced in Special Operations Forces (SOF), where operators perform missions crucial to national security that require varying degrees of language proficiency.

Historically, research on language capabilities in the military has focused on either improving foreign language training, creating or improving measures of language proficiency, or identifying predictors of proficiency for selection and placement purposes. However, to date, no research exists investigating the validity of language proficiency measures in predicting language-related job performance in a military context. The assessment of proficiency is used as a "proxy criteria" or as a precursor (i.e., necessary but not

sufficient) for job performance—in other words, it is not an actual measure of job or mission performance. While it may be assumed that proficiency *should* be related to performance on the job, this relationship has yet to be empirically demonstrated. In other words, does foreign language proficiency training *transfer* to the job? Furthermore, given the often high costs of training and testing, it would also be useful to identify which language modalities (e.g., listening, reading, or speaking) are most predictive of job performance. Our study addresses this paucity in the literature by investigating the validity of proficiency measures in a sample of SOF personnel, in order to determine their value and relative importance in predicting on-the-job language-related performance (transfer).

Importance of Language Proficiency

Proficiency in a foreign language can be a valuable skill for numerous jobs, including both military personnel and civilian employees working on expatriate assignments. For instance, in a 1991 survey of expatriate managers, the majority of respondents indicated that being able to communicate with foreign nationals was equally if not more important than technical competence (Oddou & Mendenhall, 1991). Furthermore, in their review of the literature on selecting managers for expatriate positions, Jordan and Cartwright (1998) identified linguistic ability as one of several key competencies for successful performance. With regard to military occupations, several reports suggest the critical importance of language skills. For example, in 2004, a study sponsored by the Department of Defense (DOD; Defense Science Board, 2004) suggested that language skills should be treated as seriously as combat skills. Furthermore, the 2005 DLTR report also states that language expertise is critical for achieving numerous goals. Within the SOF community, the importance of language proficiency is likely even greater, given the nature of special operations missions and job requirements. A job analysis of the Special Forces identified 15 key performance categories that were common to all SF Soldiers, one of which was "Using and Enhancing Language Skills" (Russell, Crafts, Tagliarini, McCloy, & Barkley, 1996).

Language Proficiency Frameworks and Measurement

Numerous language proficiency frameworks exist, each offering variations on how to define proficiency, and in some cases culturally related skills as well. For example, the communicative language ability (CLA) framework (Bachman, 1990), the Interactional Communication approach (Kramsch, 1986), and the Common European Framework of Reference (CEFR) for language (Council for Europe, 2004) all have varying approaches to the definition of proficiency. The framework utilized across U.S. Federal agencies including the military is the Interagency Language Roundtable (ILR) framework, which defines listening, reading, speaking, and writing proficiency in terms of functional skill levels. The ILR scale (2009) includes five "base levels" of proficiency, ranging from "no proficiency" (level 0) to "functionally native proficiency" (level 5), in addition to supplementary "plus level" descriptions indicating when a base level as been exceeded but proficiency does not fully meet the criteria for the next base level (designated as 0+, 1+, 2+, 3+, and 4+). See ILR, 2009 for a more thorough explanation of all proficiency level descriptions.

Several assessments have thus been developed to measure individual proficiency in various language modalities based on this ILR framework. For example, the Defense Language Proficiency Test (DLPT)

measures both listening and reading proficiency, up to the level of "general professional proficiency" (level 3) in accordance with the ILR scale. The test is specific to the language trained, and is administered to military personnel upon completion of their formal language training, and annually as an ongoing skill assessment. The DLPT is intended to inform decisions made within the U.S. government regarding operational readiness, incentive pay, and training decisions for language analysts (Kao, 2006). More specifically with regard to incentive pay, DLPT test results are used to establish the level of Foreign Language Proficiency Pay (FLPP) to which an individual is eligible. FLPP serves as "skill-based pay" based on the individual's tested level of listening and reading proficiency in their target language (Dierdorff & Surface, 2008).

Speaking proficiency has traditionally been assessed in the U.S. Government through the use of the Oral Proficiency Interview (OPI), a task-based test that measures speaking proficiency according to the ILR level descriptions (DLIELC, 2009). Obtaining a rating on the OPI involves the examinee engaging in a structured interview with two certified interviewers, either in-person or via telephone, where raters follow standardized protocols. At the time of this research, the OPI was not employed as an "official" assessment of language proficiency for foreign language proficiency pay or as the testing standard of SOF. This is currently in the process of changing.

Language Proficiency and Job Performance

The measurement of post-training foreign language proficiency can be seen as an evaluation of Kirkpatrick's (1998) learning criteria (level-2), and more specifically a skill-based learning outcome (Kraiger, Ford, & Salas, 1993). This post-training evaluation provides an indication of the degree to which knowledge was acquired, and the level of skill achieved in a particular language modality, but does not directly assess the transfer of those skills to on-the-job performance (i.e., Kirkpatrick's level-3). The attainment of a sufficient level of proficiency as measured by one of the previously mentioned measures can therefore be seen as "necessary but not sufficient" for transfer, in that it would likely be difficult to demonstrate high levels of language-related job performance without achieving the necessary proficiency, but measured proficiency may or may not be associated with performance. In order for skills learned in training to transfer to behavior on the job, the material learned in training must generalize to the job context, and be maintained over a period of time on the job (Baldwin & Ford, 1988). The U.S. military has correspondingly taken a "maintenance" definition of transfer with regard to language proficiency. In addition to the initial post-training assessment, military personnel take the DLPT annually to ensure that proficiency skill levels are maintained over time. However, again, neither the initial measurement nor the ongoing proficiency evaluations directly assess the transfer of skills learned in training to performance in the field.

To date, the only empirical evidence available directly examining the relationship between language proficiency and job performance comes from studies of expatriate job performance with civilian populations. For example, a recent meta-analysis on expatriate job performance examined the predictive strength of "local language ability" (Mol, Born, Willemsen, & van der Molen, 2005). Although only five studies were identified that included language ability, results suggested a significant positive relationship with job performance. While these results are encouraging, several of the studies included

in the analysis used self-report measures of language proficiency (i.e., Kraimer, Wayne, & Jaworski, 2001; Tsang, 2001), rather than a more established proficiency assessment. Furthermore, very few studies differentiated between the different language modalities (see Tsang, 2001 for an exception), making it difficult to determine which modalities are more/less critical for various types of jobs.

Currently, there is no direct empirical evidence evaluating the relationship between foreign language proficiency measures and job performance in a military context. Job analytic evidence would *suggest* that language skills are indeed an important aspect of job performance for at least certain military populations, such as the SF (Russell et al., 1996); however, a more direct assessment of the predictive potential of proficiency measures is warranted. The current research was therefore meant to address this need by providing an initial evaluation of these relationships using archival data collected from a sample of SF Soldiers. Predictor data collected from Soldiers upon completion of initial foreign language training were matched with subsequently collected language-related field performance ratings, in order to address the question: does post-training foreign language proficiency (as measured by commonly used assessments) predict job performance in the SF? Given the empirical evidence from the civilian expatriate literature (e.g., Mol et al., 2005), in addition to the SF specific job analytic information (Russell et al., 1996), the following hypotheses are proposed:

Hypothesis 1a: Listening proficiency (DLPT-L) will be positively associated with language-related performance ratings.

Hypothesis 1b: Reading proficiency (DLPT-R) will be positively associated with language-related performance ratings.

Hypothesis 1c: Speaking proficiency (OPI) will be positively associated with language-related performance ratings.

Relative Importance of Language Modalities

Given the variety of jobs both civilian and military which require some level of foreign language proficiency, it is likely that certain language modalities are more important for successful job performance in some jobs than in others. For example, some jobs may predominantly entail reading and interpreting documents or correspondence in a foreign language, while others may require a much greater degree of conversation. With regard to military occupations, recent research sponsored by the Special Operations Forces Culture and Language Office (SOFCLO) has demonstrated that specific language-related tasks vary somewhat by SOF type and mission (Surface, Poncheri, Lemmond & Sheyte, 2005); however, many of these tasks (e.g., building rapport) were found to require proficiency in speaking and conversational listening. The majority of SOF personnel who participated in the study indicated speaking and listening as the most important language skill modalities in the field. Moreover, only 37% of unit leaders indicated that a typical member of their team was able to speak effectively in their official or required language, suggesting that speaking proficiency may be a significant differentiator in terms of language-related performance (Surface et al., 2005). Having a better understanding of which modalities are most important for a given job would be beneficial in that it could serve to guide training curricula and/or organizational decisions such as which assessment to

emphasize in skill-based pay programs. Predictor and criterion data were further analyzed to address the question: within the Army SF, which of the three modalities (i.e., listening, speaking, and reading) has the largest relative weight in predicting job performance?

Hypothesis 2: Speaking (OPI) and listening proficiency (DLPT-L) will have the largest relative weights in explaining variability in language-related performance ratings.

Method

Participants

Archival data for this research were obtained from several sources. Criterion data were derived from a study conducted by North Carolina State University (NCSU) and the Army Research Institute (ARI) that included field performance data for a sample of noncommissioned, active duty SF Soldiers on an Occupational Detachment Alpha (ODA; Thompson, 2000). Soldiers were evaluated on several dimensions identified in a job analysis of the SF (Russell et al., 1996), including "Using and Enhancing Language Skills." Ratings were provided by each Soldier's Team Leader (officer), with an initial sample of 1,273. The Mixed Standard Rating Scale (MSRS) used in collecting the field performance data also included the ability to check for "logical" response patterns in the ratings provided by the officers. To ensure that illogical ratings were not incorporated as criteria, ratings with illogical patterns were eliminated, yielding a reduced sample of 1,054 Soldiers with criterion data. Refer to Desselles and Dobbins (1987) for further explanation of this procedure for identifying logical rating patterns using a MSRS rating format, and Thompson (2000) for more detailed information on the criterion data collection process.

This sample was subsequently matched with predictor data provided by the Defense Manpower Data Center (DMDC). Predictor data included post-training DLPT and OPI scores from the Soldier's initial language training, in addition to cognitive ability and language difficulty data for control purposes. Only Soldiers with complete data on *all* variables were incorporated in subsequent analyses. Of the 1,054 individuals with criterion data, a total of 155 Soldiers had complete data on all variables.

Procedure

During the time period of the study data, SF Soldiers completed an initial acquisition training program in a foreign language, and upon completion of the training were administered the DLPT (the official standard for proficiency pay and graduation), and in some cases the OPI. Although the languages varied, the curriculum, materials, and learning objectives were equivalent across all languages. The program of instruction and the instructional time were scaled across languages to account for varying degrees of language learning difficulty.

Measures

Language-related job performance. The instrument used in collecting the language performance criterion data was specifically designed for the SF (Thompson, 2000). Behaviors taken directly from Russell et al.'s (1996) job analysis were incorporated into an MSRS format, with several of these behaviors (e.g., picks up languages readily; uses language skillfully; translates adeptly, rarely, if ever, miscommunicating information) comprising a language performance dimension. Ratings on these behaviors were combined to derive a dimensional rating for language

performance on a 7-point scale, with a "7" representing high performance, and a "1" low performance.

Reading and listening proficiency. Foreign language reading and listening proficiency were measured using the Defense Language Proficiency Test (DLPT). The DLPT is specific to the language trained, and includes a 2.5 hour reading comprehension assessment, and a 1.5 hour listening comprehension assessment (Silva & White, 1993). As discussed previously, the DLPT is scored based on the ILR scale of proficiency, and measures base proficiency levels from "no proficiency" (level 0) to "general professional proficiency" (level 3), including the intermediate plus levels. For analysis purposes, the ILR values (i.e., 0, 0+, 1, 1+, 2, 2+, 3) were recoded into a 1-7 scale, with higher values indicating higher levels of proficiency.

Speaking proficiency. Language speaking proficiency was measured using the Oral Proficiency Interview (OPI). The OPI also defines proficiency based on the ILR framework, and includes a structured interview with two certified interviewers. For analysis purposes, the ILR values (i.e., 0, 0+, 1, 1+, 2, 2+, 3) were recoded into a 1-7 scale, with higher values indicating higher levels of proficiency.

Language difficulty. SF Soldiers are trained in numerous different languages, ranging in difficulty levels. Given this variability in language difficulty, it was appropriate to account for this potential influence by in including it as a control variable, as it was predicted to have a negative relationship with language-related performance. The government agencies have classified foreign languages into four categories (Categories I through IV) that reflect the increasing difficulty for a native English speaker to learn the language (Silva & White, 1993). For example, Spanish is a Category I language, German is a Category II, Russian is a Category III, and Arabic is a Category IV. Language difficulty was coded 1-4, with higher levels indicating greater difficulty.

Cognitive ability. Cognitive ability was included as a control variable, as it was expected to have a positive relationship with performance ratings. The Armed Forces Qualification Test (AFQT) served as the measure of cognitive ability. The AFQT is a standardized score based on performance on several subsections of the Armed Services Vocational Aptitude Battery (ASVAB), including verbal expression (word knowledge and paragraph comprehension), arithmetic reasoning, and mathematical knowledge (Ree & Carretta, 1994). The AFQT is an accepted and commonly used measure of general cognitive ability (Carretta & Doub, 1998).

Results

Table 1 presents descriptive statistics and zero-order correlations for all variables. An inspection of the correlations suggests that of the two control variables, language difficulty has a significant negative association with performance ratings (r = -.28, p < .01), however cognitive ability was not significantly correlated with performance in this sample. In partial support of *Hypotheses 1a – 1c*, all three proficiency predictors had significant positive correlations with performance ratings, with speaking proficiency having the largest correlation (r = .34, p < .01), followed by listening proficiency (r = .33, p < .01), and then reading proficiency (r = .21, p < .01). As would be expected, language difficulty had significant negative associations with all three proficiency measures. Furthermore, there was a relatively high intercorrelation among the three proficiency measures, with coefficients

ranging from .78 for reading and speaking, to .82 for reading and listening.

In order to provide a more thorough test of *Hypotheses 1a – 1c*, a regression analysis was performed, regressing the performance ratings on both the control variables and the proficiency predictors (using one-tailed significance tests). With regard to the control variables, language difficulty was a significant negative predictor of performance ratings ($\beta = -.19$, $p < .01$), however cognitive ability was not ($\beta = .06$, $p > .05$). Listening ($\beta = .26$, $p < .05$), reading ($\beta = -.32$, $p < .01$), and speaking proficiency ($\beta = .31$, $p < .01$) were all significant predictors of performance ratings, providing additional support for *Hypotheses 1a – 1c* beyond the bivariate correlations. Upon further inspection of the correlation and regression results, it is likely that reading proficiency is acting as a "suppressor variable," in that it has a positive bivariate correlation with performance ratings, but has a negative beta weight in the presence of the other predictors (Cohen, Cohen, West, & Aiken, 2002). In other words, while reading has a positive correlation with performance, once listening and speaking are taken into account, higher reading scores predict lower performance. Overall, the control and proficiency predictors combined to explain 17% of the variability in performance ratings.

Finally, in order to address *Hypothesis 2*, a relative weights analysis (Johnson, 2000, 2001) was performed. A relative weight reflects the proportionate contribution each predictor makes to R^2, when considering both its unique contribution and its contribution when combined with other predictors (Johnson, 2000). Furthermore, because this approach captures both the direct and indirect effects of the predictor variables, it addresses the "correlated-predictor" difficulties associated with many other measures of relative weight (Johnson, 2000). Table 2 presents the results of the relative weights analysis. The results provide support for *Hypothesis 2* in that speaking and listening proficiency had the largest weights, relative to the other predictors. Speaking proficiency accounted for 33% of the explainable variance (% of R^2) in the criterion, and listening proficiency accounted for 29%.

Discussion

This study provided a much-needed empirical investigation of the degree to which skills learned in foreign language training for SOF operators transfer to behavior on the job. Commonly used assessments of language proficiency were found to have positive relationships with language-related performance ratings provided by supervisors, a finding which is consistent with the limited evidence available from the expatriate literature (e.g., Mol et al., 2005). Furthermore, speaking and listening proficiency had the highest relative importance in explaining variability in performance. These findings suggest several implications. First of all, proficiency skills learned in training do seem to transfer to behavior on the job, providing support not only for the training itself, but also for the predictive potential of the proficiency assessments (i.e., DLPT and OPI) in identifying individuals who are likely to perform at higher levels on tasks requiring language skills. This information is useful for selection and placement purposes, so that personnel can appropriately be assigned for missions based on the language skill level needed. In addition, the results here also have implications for skill-based pay programs. For example, our results suggest that speaking and listening might prove valuable as the basis of pay decisions as they had the highest relative importance in predicting performance in our sample.

This research is however not without limitations. The use of archival data from different sources resulted in a somewhat restricted sample based on match rates across all study variables. Future research should therefore involve the collection of new data or at least attempt to identify a larger more representative sample with complete data. Furthermore, the likely presence of a suppressor effect in the regression analysis results makes those findings more difficult to interpret. However, the bivariate correlations and relative weights analysis results allow a greater degree of confidence in the findings with respect to the study's hypotheses.

This research is the first we know of to directly assess the predictive relationships between language skills learned in training and job performance in a military context. While this study was meant to provide an initial investigation of these relationships, it should by no means be interpreted as definitive. In light of the limitations, future research is needed to provide a greater understanding of the transfer of language skills to job performance. However, we believe this study provides an informative and useful preliminary examination of a skill such as language proficiency, which continues to be recognized as a critical capability for U.S. military forces.

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Table 1. Descriptive Statistics and Zero-Order Correlations for Performance and Proficiency Measures

		M	SD	V1	V2	V3	V4	V5	V6
V1	Language Performance Rating	6.49	.840	-					
V2	Language Difficulty	2.33	1.20	-.28*	-				
V3	Cognitive Ability (AFQT)	67.69	18.57	-.04	.18*	-			
V4	Reading Proficiency (DLPT-R)	4.63	1.50	.21**	-.47**	-.04	-		
V5	Listening Proficiency (DLPT-L)	4.10	1.72	.33**	-.48**	-.06	.82**	-	
V6	Speaking Proficiency (OPI)	2.51	1.53	.34**	-.44**	-.20*	.78**	.81**	-

Note. N = 155; * $p < .05$, ** $p < .01$.

Table 2. Relative Weights of Language Proficiency Measures, Language Difficulty, and Cognitive Ability in Predicting Language Performance

Predictor	*RW*	*%R²*
Language Difficulty	.044	26.0%
Cognitive Ability (AFQT)	.001	.7%
DLPT (Reading Proficiency)	.019	11.4%
DLPT (Listening Proficiency)	.049	29.0%
OPI (Speaking Proficiency)	.056	33.0%
	R^2 = .169	

Note. *RW* = raw relative weight; *%R²* = raw weight as a percentage of R^2.

ABOUT SWA CONSULTING INC.

SWA Consulting Inc. (formerly Surface, Ward, and Associates) provides analytics and evidence-based solutions for clients using the principles and methods of industrial/organizational (I/O) psychology. Since 1997, SWA has advised and assisted corporate, non-profit and governmental clients on:

- Training and development
- Performance measurement and management
- Organizational effectiveness
- Test development and validation
- Program/training evaluation
- Work/job analysis
- Needs assessment
- Selection system design
- Study and analysis related to human capital issues
- Metric development and data collection
- Advanced data analysis

One specific practice area is analytics, research, and consulting on foreign language and culture in work contexts. In this area, SWA has conducted numerous projects, including language assessment validation and psychometric research; evaluations of language training, training tools, and job aids; language and culture focused needs assessments and job analysis; and advanced analysis of language research data.

Based in Raleigh, NC, and led by Drs. Eric A. Surface and Stephen J. Ward, SWA now employs close to twenty I/O professionals at the masters and PhD levels. SWA professionals are committed to providing clients the best data and analysis with which to make solid data-driven decisions. Taking a scientist-practitioner perspective, SWA professionals conduct model-based, evidence-driven research and consulting to provide the best answers and solutions to enhance our clients' mission and business objectives. SWA has competencies in measurement, data collection, analytics, data modeling, systematic reviews, validation, and evaluation.

For more information about SWA, our projects, and our capabilities, please visit our website (www.swa-consulting.com) or contact Dr. Eric A. Surface (esurface@swa-consulting.com) or Dr. Stephen J. Ward (sward@swa-consulting.com).