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EVALUATION OF
UNESCO'S ROLE
IN EDUCATION IN
EMERGENCIES AND
PROTRACTED CRISES

CASE STUDY

4

**The effects
of police
literacy
training in
Afghanistan**

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ABSTRACT

This case study is part of an evaluation of UNESCO's role in education in emergencies and protracted crises. It examined UNESCO Kabul's Literacy for Empowering the Afghan Police (LEAP) programme with the aim to assess (i) the quality of the literacy trainings and (ii) their impact on the literacy levels of patrol men and women of the Afghan National Police (ANP).

UNESCO Kabul launched the LEAP programme in 2011 with the aim of providing literacy training to patrol officers of the ANP and supporting Afghanistan's Ministry of Interior Affairs (Mol) in the development and institutionalization of literacy programmes. In the first phase, UNESCO established a literacy unit with four Senior Master Trainers (SMTs) and set up a framework for a cascading literacy training model. The national-level SMTs trained 20 provincial-level Master Trainers, who in turn trained 500 volunteer facilitators. The second phase of LEAP focused on the delivery of literacy trainings to 10,000 patrol women and men.

The first part of the study presents an assessment of the quality of literacy training delivery. The assessment was based on class observation and facilitator and commander surveys. The results showed that there were very few facilitator characteristics that influenced the delivery of the literacy trainings. The majority of the facilitators performed well on their class observation indicators. This finding was confirmed through triangulation with other sources of information.

The second part of the study analysed the effects of participation in police literacy trainings on the literacy levels of the patrol men and women. The analysis was based on the results of the Afghan Police Literacy Survey (APLS), which had been carried out by the Mol in 2015 with technical support from UNESCO Kabul. The survey measured the literacy levels and educational attainments for a representative sample of 8,883 patrol men and women in the ANP from 27 provinces. The analysis found clear evidence of significant relationships between participation in literacy trainings and literacy levels (reading, writing, numeracy), controlling for other important variables such as prior schooling, location and attendance in months.

Overall, this study provides evidence on two steps in the causal chain from literacy training to literacy levels of patrol officers. First, the study shows that UNESCO trainings have been delivered in line with good practices of literacy classes delivery. Across the sample, no implementation failures have been identified. Together with the analysis of the APLS data, which shows positive statistically significant relationships between participation in literacy trainings and literacy levels, we can therefore conclude that UNESCO literacy trainings have been effective and provide an important contribution to enhancing the literacy levels (reading, writing, numeracy) of patrol officers of the ANP.

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ACRONYMS

ANP	Afghan National Police
APLS	Afghan Police Literacy Survey
ASER	Annual Status of Education Report (India, Pakistan)
ELTS	Effects of Literacy Trainings
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IIA	Independence of Irrelevant Alternatives
IOS	Internal Oversight Service
LEAP	Literacy for Empowering the Afghan Police
MCA	Multiple Correspondence Analysis
MoE	Ministry of Education
Moi	Ministry of Interior Affairs
MT	Master Trainer
NESP	National Education Strategy Plan
NTMA	NATO Training Mission – Afghanistan
OLS	Ordinary Least Squares
PCA	Principal Component Analysis
QLTS	Quality of Literacy Training Delivery
SMT	Senior Master Trainer

1. BACKGROUND

1.1 CONTEXT

Following decades of conflict, Afghanistan is ranked 171 out of 188 on the Human Development Index (2014), with 9.3 expected years of education and 3.2 years of average schooling (UNDP 2015). Despite some success, literacy rates remain fairly low. According to the National Literacy Strategy (2013), 36% of the population was literate (20% for women and 50% for men) in 2013. The country hopes to increase the rate to 60% (50% for women and 70% for men) by 2020 (MoE 2013).

In the context of the Afghanistan National Development Strategy, the Government has invested in the education sector and has attained some progress toward the ultimate goals of educating all of Afghanistan's children, reducing illiteracy, and creating a skilled labor force (MoE 2015a). However, the country continues to face serious challenges in its education sector.

The Afghan National Police (ANP) is part of the Ministry of Interior Affairs (MoI), and it comprises around 164,000 officers of which almost 50% are non-commissioned police patrol men and women (UNESCO 2015). Prior to 2009, police recruits were assigned as patrol persons without any training and were to be trained later (Caldwell 2011). Patrol police officers are appointed on the basis of a 3-year contract, and work under the same conditions as commissioned officers. While some level of formal education is desirable, there are no specific education requirements for the non-commissioned officers.

In 2015, the Afghan Police Literacy Survey (APLS) was conducted by the MoI, with financial support from the Government of Japan and technical assistance from UNESCO.¹ The APLS is a national sample survey that was carried out to measure the literacy levels and educational attainments of the police patrol men and women in the ANP. It is one of the first attempts to collect information on a large scale on demographic characteristics, educational attainments and literacy-related indicators for patrol officers.

TABLE 1. AFGHANISTAN: KEY INDICATORS

Indicator	2001	2003	2008 ^{b/}	2013 ^{c/}
Population (million)				34.4
Population aged 15 or above (million)				17.3
Illiterate population (million)			9.5	
National literacy rate (%)	12			
Literacy rate, male	18			
Literacy rate, female	5			
Adult literacy rate (%)	36 ^{a/}		26	36
Literacy rate, adult male (aged 15 and above)		43.2	39	50
Literacy rate, adult female (aged 15 and above)	21 ^{a/}	14.1	12	20

Note: The population of Afghanistan is based on estimates as the last comprehensive census took place in 1979. All later population data are estimates based on projections from this census (MoE 2015a).

Source: a/World Bank 2005; b/NESP (2010-2014), MoE; c/NLS, MoE, 2013.

¹ For more information on the survey, see Annex 2.

The APLS also included a literacy assessment tool to measure the literacy skills of the patrol officers. The survey covered 8,883 patrol persons from 27 provinces, and estimated that only 35.2% of the patrol persons were literate (Mol 2015).² This is a major drawback to quality law enforcement and policing as a majority of the patrol officers may not be able to perform a number of daily activities. Patrol persons' activities include verifying documents, reading car license plates, and carrying out interrogations at police checkpoints or at police stations. These tasks require a certain level of literacy skills and therefore the patrol officers who are unable to read often turn to higher-ranking police officers, with, on average, higher levels of literacy.

In this context of high rates of adult illiteracy, the Ministry of Education (MoE) continues to focus on adult literacy programmes, including on police literacy programmes. The draft National Education Strategy Plan (NESP) states that the Literacy Department of MoE will support the Mol in implementing literacy courses for ANP (MoE 2015b). In recent years there have been three major police literacy programmes being implemented in Afghanistan: the NATO Training Mission in Afghanistan (NTMA); the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); and UNESCO (in close collaboration with Mol). According to the APLS, 57% of the patrol officers covered by the survey participated at some point for some duration in one of these literacy training programs (see Annex 2).³

1.2 LEAP 1 AND 2

The Literacy for Empowering the Afghan Police (LEAP) programme was designed to address police illiteracy in Afghanistan. The programme, funded by the Government of Japan, provided literacy training to patrol men and women of ANP and support to Mol for the development and sustainability of a police literacy programme for ANP (UNESCO 2016). Phase 1 (LEAP 1) of the two-phased programme began in 2011 with UNESCO providing support to the Literacy Department of the Mol by recruiting 4 Senior Master Trainers (SMTs) and 20 Master Trainers (MTs), who were to provide technical support to the literacy training activities. The national-level SMTs trained the provincial-level

MTs, who in turn trained 500 volunteer police facilitators, putting in place a cascading training model for the literacy trainings. The volunteer facilitators were active police officers. LEAP 1 thus established an organizational structure for police literacy trainings in Afghanistan, including a network of facilitators.

The second phase of LEAP began in December 2013 and was concluded in July 2016. LEAP 2 aimed to reach 10,000 patrol men and women as certified learners (by MoE). It initially covered 19 provinces. Coverage was later reduced to 8 provinces, following a demarcation agreement with GIZ, which also provided police literacy trainings. The primary objective of LEAP 2 was to deliver quality literacy training to the patrol officers of ANP and contribute to the sustainability of police literacy training in the country by supporting the Literacy Department of Mol. It was built on the framework developed during the first phase of the programme. The literacy trainings lasted for a duration of 9 months and were delivered by the trained volunteer facilitators (active police officers). The programme also developed and published course materials and other supporting documents. LEAP developed a certification framework for the learners in close collaboration with MoE. According to the external evaluation report of LEAP 2, around 5,000 officers had received grade 3 level certificates by January 2016 (UNESCO 2016).

1.3 RATIONALE FOR THE STUDY

Relatively little is known about the effectiveness of police literacy training programmes in Afghanistan, especially the extent to which these have influenced the overall literacy levels of ANP patrol officers. This study aims to address this knowledge gap. In doing so, it responds to demands within UNESCO and beyond (e.g. the Government of Japan, principal donor of the LEAP programme) for more rigorous evidence on the effects of police literacy training programmes.

This study is part of the Internal Oversight Service's (IOS) evaluation of UNESCO's role in education in emergencies and protracted crises. The evaluation includes 3 other case studies, which together constitute phase 1 of the evaluation and the basis of a more comprehensive assessment of UNESCO and its role in education in emergencies and protracted crises (phase 2).

² This estimate was based on their self-reported information on reading and writing abilities.

³ This includes trainings by UNESCO/Mol, GIZ, NTMA, and other organizations.



1.4 PURPOSE AND SCOPE OF THE STUDY

1.4.1 Purpose

The purpose of the study is to analyze the effects of the police literacy trainings on the literacy levels of patrol officers of the ANP. More specifically, the study looks at two steps in the causal chain in order to understand the effects of the police literacy trainings:

1. The quality of police literacy trainings provided by UNESCO in collaboration with MoI.
2. The effect of participation in police literacy training on literacy levels of patrol officers of the ANP.

1.4.2 Scope

The two steps in the causal chain that runs from the provision of police literacy training to the influence on literacy levels of patrol officers are analyzed through two complementary strands of work.

1. Quality of Literacy Training Delivery Study (QLTS): The first strand of work was initially conceptualized as a counterfactual study, comparing the literacy programme of UNESCO with a similar programme implemented by another agency. The goal was to analyze the principal determinants of the quality of the literacy trainings and the effects of different

incentives to facilitators who carry out the literacy classes on literacy training quality. This design was not feasible and as a result, the QLTS was redesigned to focus on the quality of UNESCO literacy training delivery. The study relied on empirical data collection from a comprehensive sample of literacy classes conducted by UNESCO.

2. Effects of Literacy Training Study (ELTS): The ELTS study used data from a national survey conducted by UNESCO and MoI, the Afghan Police Literacy Survey (APLS), covering 8,883 patrol men and women in 27 provinces in order to assess the effects of police literacy trainings on the literacy levels of the patrol officers.

The present study addresses the following questions:

1. What has been the quality of police literacy trainings delivered by UNESCO?
2. What factors have affected the quality of the literacy trainings?
3. Is there a relationship between participation in literacy trainings and literacy levels, controlling for other contributing factors?
4. On basis of the findings from the two strands of work, what can we conclude about the effect of literacy training on literacy levels of patrol officers?

2. METHODOLOGY

2.1 QLTS STUDY

The QLTS study was originally designed as a quasi-experiment that would analyze the effects on quality of different incentives to facilitators who conduct the police literacy training. The design would allow for comparing UNESCO's literacy trainings with very similar trainings managed by other agencies. From a practical implementation perspective, this design turned out to be not feasible in the end. As a result, the QLTS was redesigned to focus on the quality of literacy training delivery of UNESCO literacy trainings.

2.1.1 Sampling framework

The sampling design was developed in function of the counterfactual comparison between UNESCO and another agency with a similar programme. The sample size for this study was determined by striking a balance between statistical power considerations and practical challenges (resources, time, and accessibility). As a result, a minimum total sample of $n = 450$ facilitators was to be covered by the study with a minimum of $n = 225$ facilitators from each of the two programmes (target total sample size: $n = 500$). The counterfactual comparison proved to be not feasible as, despite many efforts, the data collection team was not able to access several of the regions within the study sample. As a result, the principle of a quasi-experimental comparative study had to be abandoned. The sampling framework was adjusted and a sample of $n = 274$ UNESCO literacy trainings in eight provinces was covered by the study, representing almost the entire population of literacy classes conducted in the final phase of LEAP 2.

2.1.2 Data collection

A team of enumerators from the Ministry of Education was trained in Kabul. The enumerators, originating from the eight provinces covered by the study, were supervised by two literacy experts from the LEAP-supported literacy unit in the MoI. In order to adequately measure the quality of literacy training and important explanatory variables of

quality, three separate data collection tools were developed:

1. Class observation form
2. Facilitator survey
3. Commander survey

The class observation form was filled out by the enumerators during the literacy class, followed by a survey administered to the facilitator after the class. Both instruments were applied to the entire sample of $n = 274$ literacy classes. In addition, where possible, a short survey was administered to unit commanders in order to better understand their views and levels of support for police literacy training.⁴

2.1.3 Data analysis

The data analysis methods applied in this study include descriptive statistics and ordinary least squares (OLS) regression analysis on the potential determinants of different indicators of quality of literacy training.

This analysis sought to identify which facilitator characteristics assert influence over facilitators' performance. Due to its ability to separate out multiple effects on a dependent variable, multivariate OLS regression analysis was employed for this investigation. One assumption of this method is that all observations are independent and identically distributed. However, it is unlikely that this assumption would hold for this data, with geographical-area characteristics likely causing facilitator data to cluster. Therefore, province-level cluster adjustment of the standard errors was applied to the regression model (See Cameron and Miller 2015). In a bid to avoid issues of multicollinearity among the various facilitator characteristics included in the analysis, two regression models were run for each outcome so that collinear variables could be separated between them.

⁴ It was not possible to do this for all literacy classes due to time constraints and availability of the unit commander for interview.

The focal outcomes for this analysis were taken from the data captured through the facilitator class observation forms. As shown in Table 3, there does not seem to be a single indicator in the survey that sufficiently captures the overall quality of class delivery. Consequently, it was decided that an index of overall facilitator performance would be constructed, which incorporated a number of the variables collected through the classroom observations as its components. For the construction of this index, multiple correspondence analysis (MCA) was used. In the absence of empirical insights to inform the application of weights to components when constructing an index, as is the case with this analysis, Filmer and Pritchett (2001) advocate for the use of principal component analysis (PCA) to determine index component weighting. They explain that this is a more appropriate approach than the alternative of applying equal weights to each component as that, in itself, contains an arbitrary judgement that all components are of equal importance. They validate the method's ability to produce an effective indicator of wealth using data from Indonesia, Nepal and Pakistan. PCA functions by employing matrix algebra to analyze a set of covariates and produces weights based on their relative variance (Vyas and Kumaranayake, 2006), but as PCA is designed for the analysis of a set of continuous variables, MCA was used in this case, which is a variation of PCA to be used when the components are non-continuous (See Abdi and Valentin 2007). The following variables (from class observation) were used to construct the index:

- ▶ Has and uses lesson plan
- ▶ Checks attendance sheet
- ▶ Starts according to time schedule
- ▶ Checks homework from previous lesson
- ▶ Introduces topic in relation to previous lesson
- ▶ Introduces topic in relation to learner's life
- ▶ Uses various teaching methods
- ▶ Uses supplementary teaching materials
- ▶ Provides exercises
- ▶ Involves learners in the lesson
- ▶ Encourages to improve skills
- ▶ Checks understanding at lesson end
- ▶ Summarizes lesson at lesson end
- ▶ Provides homework

In order to assess whether there was any variation in the relationships between facilitator characteristics and class delivery quality across the different lesson types, separate indices were also created for language and math lesson observation data. In the construction of these, the same data

on classroom suitability, facilitator having a lesson plan, facilitator's appearance, facilitator checking the attendance sheet and time keeping were used, as these were not lesson-specific, but for the rest of the variables, only those collected for specific types of classes were included.

Apart from analyses on quality indices, for the purpose of robustness, the effect of facilitator characteristics on selected single variables was also investigated. These were chosen as they were deemed to be the best single indicators of class delivery quality available, and consisted of: whether the facilitator was deemed to have encouraged learners to improve their skills; whether the facilitator had employed various (more than one) teaching methods, and; whether the facilitator introduced the class by both relating it to the previous lesson and to learners' lives.

All statistical analyses were performed in STATA.

2.1.4 Limitations

For security and other reasons, it had not been possible to go through with the original design, a counterfactual comparing UNESCO classes to those delivered by other agencies. After redesigning the study, the following challenges remained:

- ▶ Limited or no access to unsecure areas as a result of armed conflict. Minor adjustments to the sample were made to avoid conflict areas.
- ▶ The lack of data collection on learners themselves. Administering learner satisfaction surveys or even focus groups would have added an important dimension to quality assessment. However, due to time and resource constraints⁵ it was decided not to collect data in a systematic manner at the level of the learners. Nevertheless, conversations with learners were conducted where possible and contributed to the study team's qualitative understanding of the situation. The same is true for the survey administered to unit commanders. It was possible to conduct only a limited number of commander interviews. As a result, this information was not included in the statistical analyses.
- ▶ The design of the study was adjusted while the enumerators were already in the field. With

⁵ Due to security issues in the provinces much more time and resources had to be devoted to securing access to particular regions.

the loss of the counterfactual comparison, the design did not only lose its potential for rigorous attribution analysis of the effects of different incentives on training quality, it also lost half its sample size. It was not possible to boost the sample of UNESCO literacy training classes and the statistical power of the study was significantly reduced.

- ▶ Particular assumptions underlying the use of OLS as explained above.

2.2 ELTS STUDY

The ELTS study constitutes the second strand of work in the framework of this case study. The study builds on the data from the recently completed APLS, conducted within the framework of LEAP 2.⁶ The survey collected data on the demographic characteristics and educational attainments of over 8,800 police patrol officers of ANP. Using this information, the study looked at the effect of literacy trainings on the literacy levels of the patrol officers.⁷

2.2.1 Sampling framework

The target population for this study was the approximately 67,000 patrol officers across 28 out of 34 provinces in Afghanistan. The provinces were selected by the MoI based on the assessment of the prevailing security conditions in the respective provinces. A two-stage sampling process was conducted to select the initial sample which comprised 9,415 individuals selected across 313 police units, using probability proportional to size sampling. However, the province of Nimroz was eventually dropped from the initial sample following insurgency activity in that area. In addition, several police units experienced changes in their human resource allocation and consequently the sample size was adjusted. The final sample amounted to a total of 8,883 people from 303 police units.

2.2.2 Survey process

The ELTS study used the data collected through the APLS. MoI carried out the survey with technical support from UNESCO and financial support from

the Government of Japan. Twenty-eight field teams with 149 surveyors were assigned with a supervisor and several enumerators in each selected province to accomplish the task of collecting data. From each province, 3 to 13 surveyors (including enumerators and supervisors) were selected based on the number of police units/individuals sampled from each of the respective provinces. The APLS constituted the first large scale exercise to collect data on literacy levels of the patrol officers of the ANP.⁸

2.2.3 Data collection and analysis

Literacy is an umbrella term that encompasses a diverse set of skills. Traditionally, it has been defined as a set of tangible skills - particularly the cognitive skills of reading and writing - that are independent of the context in which they are acquired and of the background of the individual who acquires them. Likewise, numeracy - and the competencies it comprises - is considered either as a supplement to the aforementioned set of skills or as a component of literacy itself (UNESCO 2006). Using this definition, the APLS administered a literacy assessment tool to the Afghan patrol officers in order to collect valuable and reliable data on the educational attainment and the literacy skills of this group. The literacy assessment tool was carefully constructed on the basis of MoE guidelines and the well-recognized ASER methodology (ASER 2015). The latter has been widely used to assess children's literacy levels in India and was modified to meet the requirements of measuring adult literacy levels in Afghanistan. The tool included a number of tests to measure respondents' literacy skills across three main competencies: reading, writing and numeracy.

In practice, the level at which individuals develop the aforementioned skills may vary substantially. For instance, an individual who has acquired proficiency in solving numerical problems may at the same time have poor reading skills. Thus, assembling all literacy components into a single indicator may fail to capture the full complexity of this multifaceted concept, which is an important point to note from an educational or policy evaluation perspective. Bearing this in mind, our analysis focuses on three separate indicators rather than a single one. These composite indicators categorize the individual's ability to read, write and solve numeracy problems. The definition and the

⁶ See UNESCO (2015) for a detailed discussion on the methodology and its challenges and limitations.

⁷ Literacy trainings in Afghanistan were mainly provided by three different institutions: UNESCO/MoI, GIZ, and NTMA.

⁸ See UNESCO (2015) for further details on the survey process.

construction of each indicator is explained in detail in Annex 2.

Apart from the literacy assessment tool, an individual questionnaire was also administered to the entire sample of patrol officers. The individual questionnaire was designed to collect information on demographic characteristics, educational attainment and other related variables (UNESCO 2015).

For each of the three literacy dimensions, aggregate literacy indicators were constructed.⁹ Subsequently, descriptive statistics and regression analysis were applied to analyze the data. The latter was used to analyze the relationships between participation in literacy training and literacy levels, controlling for other important factors. Given the ordinal nature of the literacy indicators, two types of regression models were used: ordered logistic regression and multinomial logistic regression. The theoretical frameworks underlying these approaches are explained in Annex 2. All statistical analyses were performed in STATA.

2.2.4 Limitations

To our knowledge, the ELTS study represents a first attempt to examine the extent to which literacy programmes have affected literacy skills within the ANP. There were several challenges and limitations that were encountered while carrying out this study and the survey.

The strength of the survey was undoubtedly the comprehensive assessment of literacy levels using a number of specific tests, in line with internationally recognized frameworks of literacy assessment. Notwithstanding this comparative strength of the data base, the survey was not designed to explain differences in literacy levels within the ANP. While important variables that influence literacy levels such as prior schooling and location were included in the survey, there had been no explicit reflection (on the basis of existing literature) on what variables would explain differences in literacy levels. In other words, the survey did not contain all the information for a comprehensive explanatory analysis of literacy levels.

A second challenge concerns the conditions under which data were collected. The implementation of the recent APLS made it evident that in a country like Afghanistan, with limited skilled human resources,

gathering data across a vast country with problems of access and insecurity was very challenging. The persistence of armed conflict in several provinces restricted the inclusion of all provinces in the sample selection phase. Moreover, one of the selected provinces was later on excluded from the sample due to a surge of violence in the area. Further, a number of patrol officers from selected units were not surveyed as they were deployed to conflict areas. The unfavorable security conditions also affected the free movement and availability of the trained enumerators.

The construction of the sample was also not without challenges. Although in terms of infrastructure, ANP has made remarkable progress, the lack of digital personnel files limited the availability of updated personnel statistics. This led to a significant delay in the sample design phase. Determining the real population was one of the most difficult and time-consuming tasks as it involved the collection of personnel data across all police units, which in most of the cases were provided in hard copy and in different formats. For example, in several cases missing information on gender made it difficult to determine the exact number of female patrol officers.

Despite applying different quality assurance principles in the collection and entry of the data,¹⁰ the data set contained several errors. After additional cleaning, a few variables still had to be discarded from the data set as they were plagued with errors (e.g. the variable on work-related knowledge). Moreover, one entire province was deleted from the initial sample. These factors influence the representativeness of the survey and the external validity of findings.

In the context of impact evaluation, the use of quasi-experimental approaches would be the most adequate to examine the extent to which literacy trainings have affected literacy levels. This involves controlling for sample selection bias: that is, the possibility that those who attended literacy courses may differ from those who did not and that these differences may affect outcomes (Heckman, 1979; Heckman et al., 1997).

Propensity score matching would have been a useful approach in this regard. This approach can be used to match literacy and comparison groups based on an estimation of the probability of participating in literacy programmes given a range of observable characteristics. However, in

⁹ See Annex 2 for details on the methodology.

¹⁰ See UNESCO 2015.



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the context of ANP, when a service provider offers literacy trainings in a particular district, usually all police patrol officers are eligible for (and actually) participating in literacy training as it is part of their professional job training.

Another option would have been to identify a control group outside of the police districts covered by the trainings. The pipeline approach assumes that if roll-out of a programme over time is random and not affected by particular criteria and biases, then the population of patrol officers already covered by literacy trainings on average should be similar to those not covered.

Unfortunately, there is no evidence to support this assumption and the likelihood that there are observable and non-observable differences between those that attended literacy trainings and those that did not remains high.

Overall, it should be emphasized that the APLS was not specifically designed to assess the effects of literacy programmes. This translates into a number of data constraints which narrow the possibility to match participants and non-participants as the lack of information makes it difficult to construct relevant variables to control for the aforementioned sources of selection bias.

3. ANALYSIS AND FINDINGS

3.1 QLTS STUDY

3.1.1 Descriptive and regression findings

Table 2 presents the main facilitator characteristics that were recorded in the facilitator survey. For each variable an indication of the relationship with quality is provided. In addition, descriptive statistics for each variable are provided.

Table 3 provides information on quality indicators of literacy class delivery.

Presented in the Tables 4 and 5 are the results of the OLS regression analysis. Table 4 presents the estimated effects of facilitator characteristics on the facilitator performance indices and Table 5 presents the effect on the single indicator variables. With regard to the overall index in Table 4, only facilitators having received follow-up training and facilitators' perceptions of the security of their area are found to have a statistically significant influence. With regard to follow-up training, the estimate suggests that those who did not receive the training performed better, which is the opposite of the expected effect outlined in Table 2. One possible explanation for this could be that facilitators received follow-up training if they were perceived to have failed to reach a sufficient capability level after the initial training, and this follow-up training may still not have developed their ability to match their peers. In terms of perceived security, this finding implies that those who perceive their area to be safer are more likely to perform better in the class observations. As noted in Table 2, this could plausibly be explained by classes having better attendance, which could fuel motivation, and/or facilitators feeling more comfortable in their environment and/or perhaps having more time to dedicate to their role. It should be noted, however, that this is a subjective measure of security and this finding could well be explained by other factors that lead the facilitator to assess their area as safer, such as a more positive attitude and outlook.

Looking at the lesson-specific indices, the estimates suggest that the follow-up training effect seen on the overall index also applies to both the math and language lessons. However, for the security variable, this only applies to the language lesson. Another effect specific to language lessons is the significantly negative effect of a facilitator being from Kabul. As with the security effect, this suggests that there are certain factors – which run contrary to the factors discussed in Table 2 where the expected direction of effect for this variable was positive - specifically applying to performance in language classes linked with being from the capital city.

The findings in Table 5 for the single indicators demonstrate a degree of coherence and a degree of contrast with those for the indices. There is coherence with the finding for the language index in that a facilitator being from Kabul has a significantly negative effect on using a variety of teaching methods, we also see that this has a negative effect on facilitators delivering a good introduction in both lessons. Contrastingly, however, the Kabul characteristic is shown to have a positive effect on a facilitator encouraging skill development both in language lessons and in both classes together. Also implied by the results is that receiving more days of training is positively related to performance in terms of encouraging skill development, as does the career development motivation. Finally, the results show that those who received their training more recently are likely to perform better, something which was outlined as a possibility in Table 2, with the training being fresher in the mind and facilitators perhaps being more motivated.

TABLE 2. DETAILS OF FACILITATOR CHARACTERISTICS INCLUDED IN THE ANALYSIS AND UNDERLYING HYPOTHESES

Facilitator Characteristic	Reason for Inclusion	Average/Count from Survey		No. Observations
Age	Higher age has the possibility of influencing performance in either direction. An older facilitator may have had more time to develop better teaching skills, whilst a younger facilitator may be more enthusiastic and so may perform better.	Average: 31.71		270
Rank	As a facilitator's rank rises, one would understandably assume he/she would perform better as his/her rank is likely to be correlated with education level, job commitment, and discipline. Further, he/she may be able to command a higher level of respect and attention from students.	Current Officers:		264
		Sergeant	52(20%)	
		Corporal	88(33%)	
		Lieutenant	79(30%)	
		Colonel	12(5%)	
		Captain	13(5%)	
		Major	8(3%)	
		Other	12(4%)	
		Retired Officers:		4
		Sergeant	1(25%)	
		Corporal	2(50%)	
		Lieutenant	1(25%)	
Highest education level obtained	One may expect that higher education levels would positively affect performance of the facilitators, as this may be accompanied by better communication and understanding of key concepts. They would also have had more experience of being taught themselves, which they could apply to their own teaching.	Primary	1(0.3%)	273
		Secondary	7(3%)	
		High School	213(78%)	
		Bachelor degree	52(19%)	
		Master degree	0	
Number of years served	Similar to a rank and age, one may expect that those who have served longer to have performed better due to this characteristic's correlation with job commitment and life experience.	Current Officers Average:	4.66	264
		Retired Officers Average:	4.5	4
Is from Kabul	With Kabul being the capital city and the most developed area, the characteristic may be expected to influence performance, with Kabul facilitators possibly performing better as they may have higher education levels, more responsive students (which would give them more motivation), and better facilities.	Yes	102(38%)	268
		No	166(62%)	
Is multilingual	Performance would be expected to be positively correlated with this characteristic as being multilingual is likely to be associated with higher education and a better ability to communicate.	Yes	23(8%)	274
		No	251(92%)	
Number of days training received	This characteristic is expected to be positively linked with performance as those facilitators who are given more training would be expected to be more competent at class delivery.	Average: 4.98		268
Number of weeks since training completed	This characteristic has the possibility of influencing performance in either direction. Those recently trained may perform better as their training is fresh in their minds and they may be more enthusiastic. By contrast, those who have had training in the more distant past may perform better as they have had more time to develop their skills as a facilitator.	Average: 2.36		265
Received follow-up after initial training was complete	Those who have received follow-up would be expected to perform better as this suggests that they may have received further assistance in developing their teaching ability and may feel more motivated due to the support they are receiving.	Yes	199(74%)	270
		No	71(26%)	

Facilitator Characteristic	Reason for Inclusion	Average/Count from Survey		No. Observations
Facilitator has had a previous teaching role	This characteristic is likely to positively affect performance, with those having had a previous teaching role being expected to have better developed teaching abilities.	Yes No	62(23%) 207(77%)	269
Became a facilitator because they were commanded	One may expect that those who only became facilitators because they were commanded to do so may perform worse as they have not entered into the role out of choice and, thus, may have lower motivation levels.	Yes No	93(35%) 173 (65%)	266
Became a facilitator in order to gain recognition from peers	This could influence performance in either direction. Those who took on the role in order to gain recognition from peers may perform better as they have volunteered under their own volition and so would be more motivated to perform. However, as this is perhaps a slightly fickle reason, they might perform worse as the initial motivation may not be sustained.	Yes No	121(46%) 140 (54%)	261
Became facilitator in order to develop career	This characteristic is expected to positively influence performance as, unlike the previous motivation, this seems to have more positive connotations for performance, with facilitators volunteering for the role and having a strong reason to be continuously motivated to perform well.	Yes No	162(60%) 106 (40%)	268
Security of area (safe-unsafe)	This is a self-reported variable on how secure the facilitators feel their area is. One may expect that those who feel that their area is safer would perform better in their role as they are more comfortable and are likely to have better attended classes, which could add to their motivation. However, it could conversely be the case that those who feel less safe would have higher motivation levels and would, hence, perform better as this role would be seen as a way of having time away from other riskier duties.	Ave. security rating (subjective assessment) (1 = safe, 2 = moderately safe, 3 = unsafe)	1.34	270

Source: Authors' calculations.

TABLE 3. OVERVIEW OF CLASS OBSERVATIONS

All classes			
Is the classroom proper for learning?	Yes	254 (95%)	
	No ^a	14 (5%)	
Is there a lesson plan and is it used?	Yes	220 (81%)	
	No	51 (19%)	
Is the facilitator's appearance clean?	Yes	265 (97%)	
	No	7 (3%)	
Does the facilitator check the attendance sheet?	Yes	243 (89%)	
	No	29 (11%)	
Does the facilitator start the lesson according to the time schedule?	Yes	170 (63%)	
	No	102 (33%)	
Average number of registered learners	Male	12.7	
	Female	0.47	
Average number of learners attending training	Male	8.31	
	Female	0.34	
Average number of permanent absentees	Male	0.08	
	Female	0.004	
Lesson-specific			
		Language	Math
Does the facilitator check homework of previous lesson?	Yes	214 (79%)	205 (76%)
	No	57 (21%)	64 (24%)
Does the facilitator introduce today's topic in relation with the previous lesson?	Yes	200 (74%)	167 (62%)
	No	72 (26%)	103 (38%)
Does the facilitator introduce today's topic in relation with the learners' life?	Yes	218 (80%)	180 (67%)
	No	54 (20%)	90 (33%)
Does facilitator use various teaching methods?	Yes	222 (82%)	205 (76%)
	No	49 (18%)	63 (24%)
Does the facilitator use supplementary teaching materials?	Yes	168 (61%)	130 (47%)
	No	106 (39%)	144 (53%)
Does the Facilitator involve learners in the lesson?	Yes	195 (71%)	172 (63%)
	No	79 (29%)	102 (37%)
Does the facilitator give all learners exercises?	Yes	189 (69%)	184 (69%)
	Some	69 (25%)	48 (18%)
	No	15 (6%)	33 (13%)
Does the Facilitator encourage learners to improve their skills?	Yes	219 (81%)	199 (75%)
	No	53 (19%)	66 (25%)
Does the facilitator check learners' understanding level based on today's lesson?	Yes	226 (84%)	215 (81%)
	No	44 (16%)	51 (19%)
Does the facilitator summarise today's lesson?	Yes	236 (87%)	191 (72%)
	No	34 (13%)	76 (18%)
Does the facilitator give relevant homework?	Yes	254 (94%)	234 (88%)
	No	16 (6%)	32 (12%)

^a The reasons for this response included: class is in busy dining room; class room is too dark; class is in a container and is too cold; people are rushing around outside; and classroom is in patrolman's bedroom.

Source: Authors' calculations.

TABLE 4. RESULTS OF OLS REGRESSION FOR INDICES

Facilitator characteristics (variables)	Overall indicator	Math indicator	Language indicator
Age	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.001)
Rank	0.024 (0.013)	0.028 (0.014)	0.019 (0.01)
Highest education level obtained	-0.004 (0.012)	-0.011 (0.029)	0.0001 (0.013)
Number of years served	-0.005 (0.012)	-0.004 (0.011)	-0.001 (0.007)
Is from Kabul	0.042 (0.143)	0.023 (0.155)	-0.043* (0.045)
Is multilingual	-0.059 (0.104)	-0.075 (0.108)	-0.087 (0.051)
Number of days training received	-0.068 (0.052)	-0.078 (0.056)	-0.027 (0.021)
Number of weeks since training completed	0.006 (0.04)	0.01 (0.042)	-0.006 (0.011)
Received follow-up after initial training was complete	-0.127** (0.039)	-0.128*** (0.036)	-0.156*** (0.036)
Facilitator has had a previous teaching role	0.018 (0.085)	0.025 (0.079)	-0.05 (0.03)
Reason became a facilitator was: Because they were commanded	-0.156 (0.162)	-0.147 (0.164)	-0.008 (0.048)
To gain recognition from peers	-0.001 (0.083)	-0.002 (0.088)	-0.06 (0.051)
To develop career	0.09 (0.081)	0.078 (0.056)	-0.013 (0.051)
Security of area	-0.244* (0.122)	-0.206 (0.122)	-0.154* (0.08)
Observations	225	225	225
R ²	0.214	0.194	0.325

Note: Standard errors in parentheses; Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

TABLE 5. RESULTS FROM REGRESSIONS FOR SINGLE INDICATORS

Facilitator characteristics (variables)	Improve skill (math)	Improve skills (language)	Improve skills (overall)	Use various methods (math)	Use various methods (language)	Use various methods (overall ¹⁾)	Good intro. (overall ¹⁾)
Age	0.002 (0.004)	0.001 (0.003)	0.001 (0.003)	0.003 (0.003)	-0.006 (0.004)	-0.001 (0.004)	-0.001 (0.003)
Rank	0.026 (0.017)	0.014 (0.027)	0.009 (0.02)	0.033 (0.017)	0.032 (0.058)	0.036 (0.024)	0.016 (0.026)
Highest education level obtained	-0.003 (0.038)	0.064 (0.051)	0.019 (0.081)	0.002 (0.056)	0.015 (0.058)	-0.015 (0.082)	-0.02 (0.045)
Number of years served	-0.004 (0.015)	-0.03 (0.017)	-0.016 (0.018)	-0.025 (0.02)	0.016 (0.01)	-0.017 (0.02)	-0.005 (0.012)
Is from Kabul	0.107 (0.165)	0.234** (0.088)	0.284* (0.122)	0.048 (0.162)	-0.25*** (0.065)	-0.01 (0.179)	-0.033* (0.138)
Is multilingual	-0.165 (0.134)	0.01 (0.101)	-0.065 (0.171)	-0.015 (0.019)	-0.11* (0.054)	-0.015 (0.127)	-0.149 (0.143)
Number of days training received	-0.009 (0.057)	0.142** (0.042)	0.131* (0.057)	-0.052 (0.078)	-0.073 (0.054)	-0.084 (0.095)	-0.053 (0.052)
Number of weeks since training completed	-0.069 (0.043)	-0.084* (0.038)	-0.115*** (0.031)	-0.008 (0.042)	-0.051 (0.023)	-0.013 (0.045)	0.033 (0.036)
Received follow-up after initial training was complete	0.029 (0.026)	-0.049 (0.029)	0.053 (0.041)	-0.247** (0.084)	-0.173 (0.092)	-0.251** (0.078)	-0.159** (0.063)
Facilitator has had a previous teaching role	0.017 (0.083)	-0.012 (0.058)	0.053 (0.079)	-0.04 (0.097)	-0.13* (0.056)	-0.05 (0.124)	-0.033 (0.089)
Reason became a facilitator was:							
- Because they were commanded	-0.102 (0.181)	-0.043 (0.092)	-0.167 (0.168)	-0.069 (0.1560)	0.142** (0.044)	-0.03 (0.167)	-0.217 (0.155)
- To gain recognition from peers	-0.002 (0.076)	-0.161* (0.071)	-0.023 (0.077)	-0.152 (0.126)	-0.197 (0.121)	-0.173 (0.167)	0.248** (0.072)
- To develop career	0.149 (0.107)	0.014 (0.057)	0.179* (0.084)	-0.025 (0.095)	-0.241** (0.074)	-0.1 (0.122)	0.21** (0.074)
Security of area	-0.161 (0.127)	-0.202** (0.079)	-0.211* (0.111)	-0.058 (0.142)	0.023 (0.121)	-0.055 (0.167)	-0.345** (0.099)
Observations	225	225	225	225	225	225	225
R ²	0.122	0.198	0.191	0.109	0.357	0.123	0.346

Note: Standard errors in parentheses; Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

3.1.2 Key findings

The most salient aspect of the results is that very few of the facilitator characteristics are seen to have an influence on facilitator performance. When this is combined with the fact that, as can be seen in Table 3, high percentages of facilitators performed well in the majority of the class observation indicators, the main message presented by this analysis becomes clear: that the training of the LEAP 2 facilitators is proving very effective at producing capable facilitators, regardless of their background or motivation for joining. And when the responses to interviews with a large number of Unit Commanders is considered, in which near unanimously positive feedback on the programme was received, further weight is added to this conclusion.

3.2 ELTS STUDY

3.2.1 Descriptive statistics

Table 6 presents the descriptive statistics from the APLS survey data (excluding the literacy test scores). Additional descriptive statistics are presented in Annex 2.

Attendance of literacy trainings varied greatly from under 1 month to 36 months, according to the survey. However, it must be noted that the data does not allow for distinguishing between those who were enrolled in literacy trainings at the time of the survey and those who had completed the programme or had their classes interrupted while the APLS was being carried out. However, the long-term attendance (1.5 years or above) that was seen in a small percentage of learners (about 8%; see Figure A2.2 in Annex 2) might have been caused by external factors (e.g. security issues), including the temporary suspension of some classes.

Table 6 presents descriptive statistics for all dependent variables as well as the independent ones. About 11% of the patrol officers were living in rural areas. More than half (53%) of the patrol officers reported to be able to read and write in only one of the official languages (Dari/Pashto), nearly 30% declared they were able to read and write in both languages, whereas less than 2% indicated they were able to read and write in other languages. The average years of formal education was 3, which is equivalent to grade 2 of the current basic education system.

The construction of the three literacy variables, based on various tests, is discussed in Annex 2. Table 6 shows that more than 45% could not read at all, 26% were rated as having low reading literacy, 10% were rated as having medium reading skills and 18% were classified as having a high level of reading skills. Nearly 32% of survey participants were unable to write, while almost 31% demonstrated low writing skills, 13% showed medium writings skills and around 25% of the patrol officers had high writing literacy skills. Finally, around 19% of survey participants were ranked as having no numerical literacy skills, almost 22% showed low numeracy skills, around 32% showed medium numeracy skills and 27% were considered as having high numeracy skills. These figures support the prevalence of low literacy levels in the ANP.

Consistent with the literature on literacy, the literacy indicators in this study depict that individuals develop their literacy skills at different levels. Pairwise combinations of literacy components (see Table 7) indicate that above 26% of patrol staff cannot read or write, 17% cannot read or solve numeracy problems and 16% cannot write or solve numeracy problems. Nearly 5% of police members have a medium level of reading literacy along with a high level of writing literacy, 12% have low reading and writing skills, 14% have low writing skills but also medium numeracy skills and 18% have high writing and numeracy skills. These figures clearly demonstrate that any literacy assessment based on a skills-based definition will provide a much richer analysis than the one based on a dichotomous definition of literacy.¹¹

Theoretically, in an ideal scenario, individuals with formal education should have already developed basic literacy skills. The evidence in the context of Afghanistan, however, reveals that illiteracy is also an issue among police members with formal education. Regarding the literacy skills of those who have no prior participation in literacy trainings, figures indicate that 43% of police members with primary education cannot read, 27% cannot write and 10% have no numerical skills (see Table 8). Around 19% of individuals with lower secondary education have low reading skills, around 18% have low writing skills and 9% have low numeracy skills. To some extent, these figures might be explained by the poor quality of formal education that respondents have received in the past.

¹¹ See Annex 2 for further discussion on this.

TABLE 6. DESCRIPTIVE STATISTICS

Variables		N	Percentage	M	SD	Min	Max
Age		8124		26.8	5.3	16	60
Gender	Male	8716	98.12				
	Female	167	1.88				
Single	Yes	2227	25.07				
	No	6656	74.93				
Household size		8839		8.6	4.9	1	77
Location	Rural	895	11.20				
	Urban	7988	88.80				
Formal education (years)		8883		3.0	4.5	0	19
Literacy programme	Yes	5300	40.34				
	No	3580	59.66				
Attendance (months)		5300		7.5	7.2	0	36
Afghan uniformed police	Yes	4274	48.11				
	No	4609					
Job duration (years)		8883		3.3	2.5	0	25
Language (Dari/Pashto)	Other	162	1.82				
	Both	2634	29.65				
	Only one	4745	53.42				
	One of them + other	1342	1.82				
Literacy institution	UNESCO/Mol ^a	1336	15.04				
	GIZ	3075	34.62				
	NTMA	230	2.59				
	Others	659	7.42				
	None	3583	40.34				
Reading skills levels	None	4045	45.54				
	Low	2325	26.17				
	Medium	911	10.26				
	High	1602	18.03				
Writing skills levels	None	2826	31.81				
	Low	2732	30.76				
	Medium	1145	12.89				
	High	2180	24.54				
Numeracy skills levels	None	1675	18.86				
	Low	1952	21.97				
	Medium	2817	31.71				
	High	2439	27.46				

^a UNESCO and Mol are reported as a single group as the Literacy for Empowering the Afghan Police (LEAP) programme assumed the leading role in police literacy trainings, which were formerly provided by Mol. Moreover, it is worth mentioning that participation figures for UNESCO could be overestimated in the APLS as respondents could not always clearly distinguish between Mol and UNESCO.

Source: Authors' calculations.

TABLE 7. LITERACY INDICATORS BY LEVELS

Skill levels	Literacy dimensions					
	Reading-Writing		Reading-Numeracy		Writing-Numeracy	
	number	%	number	%	number	%
None-None	2328	26.2	1511	17.0	1437	16.2
None-Low	1431	16.1	1301	14.6	837	9.4
None-Medium	192	2.2	989	11.1	489	5.5
None-High	94	1.1	244	2.7	63	0.7
Low-None	434	4.9	142	1.6	228	2.6
Low-Low	1077	12.1	517	5.8	933	10.5
Low-Medium	508	5.7	1194	13.4	1253	14.1
Low-High	306	3.4	472	5.3	318	3.6
Medium-None	40	0.5	12	0.1	10	0.1
Medium-Low	158	1.8	94	1.1	135	1.5
Medium-Medium	284	3.2	371	4.2	567	6.4
Medium-High	429	4.8	434	4.9	433	4.9
High-None	24	0.3	10	0.1	0	0.0
High-Low	66	0.7	40	0.5	47	0.5
High-Medium	16 ¹	1.8	263	3.0	508	5.7
High-High	1351	15.2	1289	14.5	1625	18.3
Total	8883	100	8883	100	8883	100

Source: Authors' calculations.

TABLE 8. LITERACY SKILL LEVELS BY PARTICIPATION IN LITERACY TRAININGS AND EDUCATION LEVELS

Literacy dimension/ Education level	Skill-levels of literacy																	
	Without literacy training									With literacy training								
	None		Low		Medium		High		Total	None		Low		Medium		High		Total
	nr	%	nr	%	nr	%	nr	%	nr	nr	%	nr	%	nr	%	nr	%	nr
Reading (a)																		
Never attended school	1900	76.9	457	18.5	41	1.7	72	2.9	2470	1547	48.6	1144	35.9	310	9.7	184	5.8	3185
Preschool	4	80.0					1	20.0	5	3	27.3	3	27.3	4	36.4	1	9.1	11
Primary education	198	43.3	130	28.4	43	9.4	86	18.8	457	249	25.4	342	34.8	184	18.7	207	21.1	982
Lower secondary education	29	12.8	42	18.6	50	22.1	105	46.5	226	71	12.1	128	21.9	147	25.1	239	40.9	585
Higher secondary education	14	3.7	25	6.6	37	9.8	302	79.9	378	25	4.9	48	9.4	86	16.9	349	68.7	508
Vocational/Technical	2	6.9	4	13.8	3	10.3	20	69.0	29	3	12.0	2	8.0	6	24.0	14	56.0	25
University or above							18	100.0	18							4	100.0	4
Total	2147	59.9	658	18.4	174	4.9	604	16.9	3583	1898	35.8	1667	31.5	737	13.9	998	18.8	5300
Writing (b)																		
Never attended school	1495	60.5	801	32.4	92	3.7	82	3.3	2470	947	29.7	1248	39.2	541	17.0	449	14.1	3185
Preschool	4	80.0					1	20.0	5	2	18.2	1	9.1	2	18.2	6	54.5	11
Primary education	125	27.4	167	36.5	56	12.3	109	23.9	457	170	17.3	303	30.9	192	19.6	317	32.3	982
Lower secondary education	24	10.6	40	17.7	35	15.5	127	56.2	226	35	6.0	115	19.7	132	22.6	303	51.8	585
Higher secondary education	13	3.4	29	7.7	30	7.9	306	81.0	378	10	2.0	21	4.1	59	11.6	418	82.3	508
Vocational/Technical	1	3.4	5	17.2	3	10.3	20	69.0	29			2	8.0	3	12.0	20	80.0	25
University or above							18	100.0	18							4	100.0	4
Total	1662	46.4	1042	29.1	216	6.0	663	18.5	3583	1164	22.0	1690	31.9	929	17.5	1517	28.6	5300
Numeracy (c)																		
Never attended school	1063	43.0	751	30.4	499	20.2	157	6.4	2470	461	14.5	889	27.9	1344	42.2	491	15.4	3185
Preschool	4	80.0					1	20.0	5	2	18.2	2	18.2	1	9.1	6	54.5	11
Primary education	49	10.7	107	23.4	175	38.3	126	27.6	457	71	7.2	114	11.6	396	40.3	401	40.8	982
Lower secondary education	5	2.2	21	9.3	65	28.8	135	59.7	226	14	2.4	33	5.6	201	34.4	337	57.6	585
Higher secondary education	5	1.3	17	4.5	44	11.6	312	82.5	378	1	0.2	14	2.8	81	15.9	412	81.1	508
Vocational/Technical	0	0.0	3	10.3	6	20.7	20	69.0	29	0	0.0	1	4.0	3	12.0	21	84.0	25
University or above							18	100.0	18					2	50.0	2	50.0	4
Total	1126	31.4	899	25.1	789	22.0	769	21.5	3583	549	10.4	1053	29.4	2028	56.6	1670	46.6	5300

Source: Authors' calculations.

TABLE 9. ORDERED LOGISTIC MODEL: DEPENDENT VARIABLE: READING SKILL LEVELS

Variables		Total sample ^{le}	With literacy training ^{ug}
		(1)	(2)
		Ologit	Ologit
	Age	-0.003 (0.005)	0.001 (0.006)
	Gender	0.473*** (0.171)	0.793*** (0.213)
	Single	0.045 (0.058)	0.140* (0.075)
	Formal education (years)	0.301*** (0.006)	0.257*** (0.007)
	Household size	-0.018*** (0.005)	-0.015** (0.006)
	Location (1 = rural)	-0.355*** (0.080)	-0.151 (0.094)
Job-related factors	Uniformed police	-0.144*** (0.046)	-0.236*** (0.057)
	Job duration (years)	0.002 (0.010)	-0.007 (0.012)
Literacy-related factors	Attendance (months)	0.043*** (0.004)	0.039*** (0.004)
	UNESCO/MoI		0.119 (0.098)
	GIZ		0.235*** (0.089)
	NTMA		-0.345** (0.153)
	Literacy training	0.468*** (0.056)	-0.658*** (0.178)
Language (Dari/Pashto)	Both	-0.293* (0.157)	-0.520*** (0.174)
	Only 1 of them	-0.284* (0.154)	-0.621*** (0.179)
	One of them + other	-0.461*** (0.160)	
Cut values	cut1	0.736*** (0.285)	0.375 (0.351)
	cut2	2.376*** (0.287)	2.068*** (0.353)
	cut3	3.278*** (0.288)	3.087*** (0.355)
	Observations	8,083	4,783
	Pseudo R ²	0.188	0.136
Score test for proportional odds assumption		$X^2_{(26)}=304.74$ p-value=0.00	$X^2_{(30)}=280.44$ p-value=0.00

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

With regard to the literacy skills of those who reported participation in literacy trainings, figures reveal that more than 48% of police members with no formal education still cannot read; the majority of them (42%) attended literacy trainings for approximately three months or less. Almost 36% of police members with no formal education have low reading skills, 39% have low writing skills, and almost 28% have low numeracy skills. No causal observations can be made at this stage. This is the subject of the next section where we will look at the effects of literacy trainings.

3.2.2 Effects of literacy trainings on literacy skills: Reading skills

A considerable amount of literature has pointed out that education provides productive capacities to individuals which enable them to access better jobs and to improve their lives (see for instance Mincer 1958, 1974). Reading skills constitute the foundation of almost all learning processes. The gradual development of this skill requires the use of various cognitive skills; thus, reading is not only word recognition, but also comprehension, thinking, reasoning and activation of prior knowledge on a topic (Baker 1989). Several of these aspects have been considered in the literacy assessment tool of the APLS survey (UNESCO 2015).

In this study, the reading literacy variable has four skill categories; in which “high” is the highest rating possible and “none” is the lowest. The ordered logistic model predicts the likelihood of a patrol person advancing to each successively higher level of reading literacy. Coefficients represent the ordered-log estimates for a one-unit increase (or decrease) in any independent variable, assuming that the other variables are held constant. Positive coefficients are associated with higher levels of reading literacy, while negative coefficients are associated with lower levels of reading literacy.

Table 9, column 1, reports estimation results for the entire sample while column 2 reports estimation results for a reduced sample, which is composed of individuals who have received some form of literacy training. The cut-off points, reported at the bottom of each model, indicate where the latent variable is cut to create the four skill levels that we observe in our data.

As shown in Table 9, estimation results reveal that formal education, literacy training, language, literacy training attendance (duration) and gender (1 = male) increase the log odds of having higher levels of literacy. From Table 9, column 1, the coefficient value of 0.043 means that a one-unit increase in attendance to literacy trainings is expected to lead to a 0.043 increase in the log odds of being in a higher level of reading literacy, given that all the other variables in the model are held constant. Regarding the odds ratio, the interpretation is as follows: for each additional month of attendance of literacy trainings, the odds of having a “high” level of reading skills versus the combined medium and low categories of reading literacy are 1.04 (=exp(0.043)) times greater, given that the other variables are held constant. Similarly, a one-unit increase in literacy training (i.e. going from 0 = not receiving literacy training to 1 = receiving literacy training), leads to a 0.468 increase in the log odds of being in a higher level of reading, given that all other variables are held constant. In other words, the odds of having a high level of reading literacy versus the combined medium and low categories of reading literacy is 1.59 times greater for those individuals participating in literacy trainings.

The results also indicate that the variables household size and uniformed police decrease the log odds of having higher levels of reading literacy. In other words, police members who work as part of one of the uniformed police units have a lower likelihood of attaining a higher level of reading literacy compared to those working in other units. Uniformed police units are responsible for providing public security; patrol officers assigned to these units tend to experience a heavy workload which might be limiting their time to learn. Similarly, police members living in larger households have a lower likelihood of attaining a higher level of reading literacy compared to those living in relatively smaller households. This is not surprising since many studies on adult literacy have pointed out that the responsibilities adults might have, either at work or at home, tend to negatively impact on the time they devote to acquiring knowledge and skills.

In order to examine the extent to which the different literacy trainings have affected reading literacy, the ordered logistic model was estimated using a reduced sample composed of those individuals who have received some form of literacy training. As previously mentioned, literacy trainings in Afghanistan have been mainly provided by UNESCO in cooperation with MoI, GIZ and

NTMA. Literacy trainings provided by any other institution constitute the reference group for our set of literacy training programmes. As shown in Table 9, column 2, a one-unit increase in the variable GIZ leads to a 0.235 increase in the log odds of attaining a higher level of reading literacy, given that all other variables in the model are held constant. This also means that the odds of attaining a high level of reading literacy versus the combined medium and low categories of reading literacy are 1.26 times greater for those individuals participating in literacy trainings provided by GIZ than for those participating in other literacy trainings. The coefficient for UNESCO/Mol is also positive but not statistically significant.

By contrast, a one-unit increase in the variable NTMA, leads to a 0.345 decrease in the log odds of being in a higher level of reading literacy. In other words, for participants of literacy trainings provided by NTMA, the odds of having a high level of reading literacy versus the combined medium and low categories of reading literacy are 0.71 times lower than for those participating in other literacy trainings. One possible explanation is that literacy trainings provided by NTMA contribute to attain a low skill-level of reading literacy only.

One of the assumptions underlying the ordered logistic model is the parallel regression assumption, which states that the coefficients that describe the relationship between the lowest versus all higher categories of the outcome variable, in our case reading literacy, are the same as those that describe the relationship between the next lowest category and all higher categories. In other words, the ordered logistic model assumes that the distance between each category is proportional. To test whether this assumption is met, we used the Brant Test (Brant 1990).

The statistical significance of the Brant Test results for the set of reading literacy regressions in Table 9 indicate that the influence of formal education and attendance of literacy trainings are not proportional across each category of reading literacy. In short, the parallel regression assumption is violated. Econometric practitioners highlight a number of alternatives to overcome this issue. As in practice the parallel assumption is often violated by the data, one common option is to go ahead and use the model assuming that the practical implications of violating this assumption are minimal. Another common option is to dichotomize the outcome variable of interest in order to estimate it through a logistic regression, or to use a non-ordinal

alternative, such as multinomial logistic regression. A final option is to use a model that does not assume the parallel assumption.

Although it is possible to use the ordered logistic model assuming that the practical implications of violating this assumption are minimal, alternative options were considered. The option of dichotomizing the outcome variable was disregarded as it is less precise. As a result, we estimated a multinomial model, which frees us from the proportional assumption.¹²

A multinomial regression model is a multi-equation model. For our dependent variable with four categories ($k = 4$), the multinomial regression estimates $k-1$ logit equations. The lowest category ($Y = 0$), which is composed of those individuals who cannot read, was chosen as the reference group. Results are reported in Table 10. Columns 1-3 report the estimates for the entire sample and columns 4-6 report the estimates for the subsample of patrol men and women who have been participating in literacy trainings. In addition, in order to get a better understanding of the impact of literacy trainings in terms of long or short-term attendance, the variable attendance was categorized into five groups. The reference group is composed of those patrol officers who have been receiving literacy training for less than a month. Results for this model are presented in Table 10, columns 7-9.

The Wald Test was used to test the effects of the independent variables. For the multinomial logistic regression based on the total sample, the results of this test were statistically significant for gender, uniformed police, location, formal education, household size, literacy training, attendance and one of the language variables (Dari/Pashto + other). For instance, the effect of literacy training on reading literacy was significant at the 0.01 level (147.76, $df=3$, $p<.01$). In addition, the coefficient for attendance (the duration of literacy training) was also statistically significant at the 0.01 level (125.6, $df=3$, $p<.01$). Results of the Wald Tests for the reduced sample lead to similar conclusions.

To interpret the results of the multinomial regression model, let us focus on the coefficient of literacy training in the high reading level equation for the total sample (column 3 in Table 10), which is 0.284.

¹² Analyses for the other literacy dimensions will only show the multinomial logistic regression results. The ordered logistic regression models are presented in Annex A2.4.

The relative probability (also called relative odds) of attaining a high reading skill level rather than being unable to read is a factor 1.32 ($=\exp(0.284)$) higher for those who participate in literacy trainings than for those with the same characteristics (i.e. age, language, and so forth) who do not participate in literacy trainings.

Similarly, the coefficient of attendance in the high reading skill level equation for the sample that has attended some form of literacy training (column 6 in Table 10) is 0.065, which indicates that the relative probability of attaining a high reading skill level rather than having no reading skills increases by a factor 1.067 for each additional month of attendance. The coefficients for period of attendance in Table 10 columns 7-9 enable us to examine further the impact that attendance has on reading literacy.

As shown in Table 10, columns 7-9, coefficients for the variable attendance between 1 to 9 months are statistically significant only for the low and medium skill equations (columns 7 and 8 respectively). A coefficient of 0.813 in the low-skill equation (column 7 in Table 10) indicates that for those whose attendance ranges from 1 month to 9 months, the relative probability of advancing to a low reading skill level rather than not being able to read is more than double (2.25) the corresponding relative probability for those with a lower attendance of literacy trainings. By contrast, a coefficient of -0.527 indicates that a one-unit increase in attendance between 1 to 9 months increases the relative probability of advancing to a medium reading skill level rather than being not able to read by a factor of 0.59. The effect of attendance on the medium reading skill equation is much lower than the one it has on the low skill level equation. These results suggest that, in relative terms, the length of attendance to literacy trainings significantly impacts the process of acquiring reading skills. Moreover, attendance ranging from 1-9 months appears to be insufficient to develop higher levels of reading literacy.

Finally, Table 11 presents the Hausman and Small-Hsiao tests that were used to test the assumption of independence of irrelevant alternatives (IIA). The econometrics literature notes that if the test statistic is significant, the assumption of IIA is rejected, which indicates that the multinomial logistic model is inappropriate (Long and Freese 2014). Given the insignificance of all test results for estimations based on the total sample, the assumption of IIA cannot be rejected (see Table 11). For estimations based on the reduced sample,

some negative tests statistics were found for the Hausman Test. In practice, negative test statistics are very common. Hausman and McFadden (1984) note this possibility and conclude that a negative result is evidence that the IIA assumption has not been violated. Results for the Small-Hsiao Tests also indicate that the IIA assumption holds.

3.2.3 Effects of literacy trainings on literacy skills: Writing skills

Our analysis of writing skills is based on the same methodological approach utilized to examine reading skills. Annex A2.4 reports the ordered logistic models estimated for the entire and the reduced sample, composed of those patrol men and women with literacy trainings.

Here we focus on the results of the multinomial logistic regression models. Table 12 reports the estimation results for the multinomial regressions. Columns 1-3 report results for the entire sample, columns 4-6 show the results for the reduced sample of patrol officers with literacy trainings, while columns 7-9 show the effects on the reduced sample broken down by the duration of attendance. The coefficient for attendance in the high level equation (column 3 in Table 12) reveals that an additional month of attendance increases the relative probability of advancing to a high writing level rather than not being able to write by a factor 1.07 ($= \exp(0.067)$).

Coefficients for the variable attendance between 1 to 9 months are statistically significant only for the low and medium skill equations (see Table 12, columns 7 and 8). A coefficient of -0.609 in the low skill equation indicates that for a one-unit increase in attendance between 1 to 9 months, the relatively probability of advancing from no writing skills to a low writing skill level increases by a factor 0.93. Similarly, a coefficient of 0.873 reveals that a one-unit increase in attendance between 1 to 9 months increases the probability of advancing to a medium writing skill level rather than having no writing skills by a factor of 2.44, given that all other variables are held constant.

As in the case of reading literacy, the model estimations for writing skills show positive and statistically significant coefficients for participation in literacy training as an explanatory variable of literacy levels, controlling for other important variables such as prior schooling, location and attendance in months.



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3.2.4 Effects of literacy trainings on literacy skills: Numeracy skills

Ordered estimations for numeracy literacy are presented in Annex A2.4. Multinomial logistic estimations for numeracy literacy are presented in Table 13. Just like in previous estimations, columns 1-3 report results for the entire sample, columns 4-6 show the results for the reduced sample of patrol officers with literacy trainings, while columns 7-9 show the effects on the reduced sample broken down by the duration of attendance. Looking at the literacy-related variables for the sub-sample of patrol men and women with literacy training (Table 13, columns 4-6), it can be observed that the coefficients for the variable attendance are statistically significant in all skill-level equations. In the low skill equation, the value of 0.05 is analogous to an odds ratio of 1.05 ($\exp(0.05)$). This means that one additional month of attendance of literacy training multiplies the relative odds ratio of attaining a low literacy skill level by 1.050 in comparison to having no numerical skills. In other words, one month of attendance increases the relative odds of moving from no numerical skills to low numeracy skills by about 5%. Similarly, the values of 0.077 and 0.093 in the medium and high skill equations respectively indicate that for each one month in literacy trainings, the relative odds of attaining a medium and high literacy-skill level rather than having no numerical skills increases by about 8% and 10%, respectively.

As in the case of writing and reading literacy, the model estimations for numeracy skills show high positive and statistically significant coefficients for participation in literacy training as an explanatory variable of literacy levels, controlling for other important variables such as prior schooling, location and attendance in months.

3.2.5 Key findings

Descriptive statistics reveal that despite some progress, low literacy levels continue to prevail among the patrol officers of the ANP. Literacy indicators based on the recent APLS reveal that nearly 26% of patrol men and women cannot read or write, 17% cannot read or solve numeracy problems, and 16% cannot write or solve numeracy problems. Further, 46% of the police patrol population cannot read, 32% cannot write, and 18% cannot solve numeracy problems.

Overall, the model estimations for reading, writing and numeracy skills show high positive and statistically significant coefficients for participation in literacy training as an explanatory variable of literacy levels, controlling for other important variables such as prior schooling, location and attendance in months. Estimation results reveal that the likelihood of advancing to higher levels of literacy increases by each month of effective attendance of literacy trainings.

TABLE 10. MULTINOMIAL LOGISTIC REGRESSIONS. DEPENDENT VARIABLE: READING LITERACY SKILLS

Variables	Total sample			With literacy training					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Age	-0.001	-0.006	-0.009	0.010	0.003	-0.003	0.010	0.003	-0.002
	(0.006)	(0.010)	(0.009)	(0.008)	(0.011)	(0.011)	(0.008)	(0.011)	(0.011)
	0.347*	0.884**	0.863***	0.650**	1.154***	1.207***	0.614**	1.147***	1.172***
	(0.208)	(0.354)	(0.316)	(0.257)	(0.412)	(0.406)	(0.258)	(0.413)	(0.406)
	0.004	0.016	0.087	0.106	0.185	0.231*	0.087	0.159	0.206
	(0.076)	(0.112)	(0.103)	(0.103)	(0.134)	(0.133)	(0.103)	(0.134)	(0.133)
Formal education (years)	0.140***	0.309***	0.439***	0.103***	0.261***	0.392***	0.101***	0.263***	0.393***
	(0.010)	(0.011)	(0.011)	(0.012)	(0.013)	(0.013)	(0.012)	(0.013)	(0.013)
Household size	-0.011*	-0.037***	-0.023***	-0.005	-0.028***	-0.022**	-0.006	-0.027**	-0.022**
	(0.006)	(0.010)	(0.008)	(0.007)	(0.011)	(0.010)	(0.007)	(0.011)	(0.010)
Location (1 = rural)	-0.428***	-0.330**	-0.558***	-0.094	-0.188	-0.358**	-0.095	-0.214	-0.367**
	(0.104)	(0.148)	(0.149)	(0.127)	(0.167)	(0.173)	(0.126)	(0.168)	(0.173)
Job-related factors	0.032	-0.199**	-0.287***	-0.025	-0.359***	-0.386***	-0.005	-0.336***	-0.362***
	(0.059)	(0.088)	(0.084)	(0.077)	(0.102)	(0.103)	(0.077)	(0.102)	(0.102)
Job duration (years)	-0.027**	0.020	0.009	-0.086***	-0.007	0.013	-0.080***	-0.003	0.015
	(0.012)	(0.018)	(0.017)	(0.016)	(0.021)	(0.021)	(0.016)	(0.021)	(0.021)
Literacy-related factors	Attendance (months)	0.047***	0.074***	0.075***	0.046***	0.066***	0.065***		
		(0.006)	(0.007)	(0.008)	(0.006)	(0.007)	(0.008)		
	Between 1-9 months						0.813***	-0.527**	-0.226
							(0.272)	(0.267)	(0.322)
	Between 10-18 months						1.206***	0.109	0.266
							(0.287)	(0.291)	(0.346)
	Between 19-27 months						1.238***	0.722**	0.901**
							(0.324)	(0.324)	(0.378)
	Between 28-36 months						1.314***	0.744*	1.253***
						(0.384)	(0.392)	(0.433)	
UNESCO/Mol				-0.065	0.074	0.209	-0.121	0.090	0.204
				(0.126)	(0.181)	(0.177)	(0.126)	(0.182)	(0.178)
GIZ				-0.095	0.382**	0.344**	-0.044	0.466***	0.434***
				(0.117)	(0.163)	(0.162)	(0.116)	(0.163)	(0.163)
NTMA				0.024	-0.914***	-0.838***	0.008	-0.854***	-0.799***
				(0.190)	(0.326)	(0.291)	(0.189)	(0.327)	(0.292)
Literacy training	0.697***	1.060***	0.284***						
	(0.073)	(0.113)	(0.100)						

Variables		Total sample			With literacy training					
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Language (Dari/Pashto)	Both	-0.239 (0.200)	-0.080 (0.331)	-0.628** (0.289)	-0.845*** (0.250)	-0.622* (0.362)	-1.178*** (0.333)	-0.862*** (0.250)	-0.680* (0.363)	-1.239*** (0.334)
	Only 1 of them	-0.323 (0.197)	0.031 (0.326)	-0.554* (0.284)	-0.776*** (0.245)	-0.439 (0.356)	-1.005*** (0.327)	-0.778*** (0.245)	-0.488 (0.357)	-1.054*** (0.329)
	One of them + other	-0.292 (0.204)	-0.261 (0.337)	-0.943*** (0.298)	-0.668*** (0.251)	-0.598 (0.366)	-1.196*** (0.339)	-0.684*** (0.251)	-0.628* (0.367)	-1.235*** (0.340)
	Constant	-1.143*** (0.357)	-3.564*** (0.582)	-2.689*** (0.526)	-0.309 (0.453)	-2.563*** (0.670)	-2.523*** (0.657)	-0.861* (0.518)	-1.817*** (0.704)	-2.009*** (0.711)
	Observations	8083	8083	8083	4783	4783	4783	4783	4783	4783
	Log likelihood	-8165	-8165	-8165	-5434	-5434	-5434	-5440	-5440	-5440
	Pseudo R ²	0.188	0.188	0.188	0.145	0.145	0.145	0.144	0.144	0.144

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

TABLE 11. TESTS OF IIA ASSUMPTION. ESTIMATIONS FOR READING SKILLS

Tests of IIA assumption		Total sample		With literacy training		X ²	p-value
		X ²	p-value	X ²	p-value		
Hausman Test	Low	13.55	0.990	135.64	0.000	4.77	1.000
	Medium	35.02	0.169	27.055	0.669	-11.29	
	High	0.634	1.000	-9.588		-2.250	
Small-Hsiao Test	Low	27.89	0.470	37.282	0.239	47.44	0.140
	Medium	35.19	0.164	37.403	0.235	33.65	0.671
	High	34.79	0.176	40.202	0.151	33.14	0.694

Source: Authors' calculations.

TABLE 12. MULTINOMIAL LOGISTIC REGRESSIONS. DEPENDENT VARIABLE: WRITING LITERACY SKILLS

Variables		Total sample									
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	
Age		-0.013**	0.006	0.016*	-0.019**	0.006	0.018*	-0.019**	0.006	0.017*	
		(0.007)	(0.009)	(0.008)	(0.009)	(0.011)	(0.010)	(0.009)	(0.011)	(0.010)	
	Gender		0.143	1.309***	0.785***	0.424*	1.774***	1.088***	0.466*	1.757***	1.060***
			(0.202)	(0.396)	(0.282)	(0.257)	(0.492)	(0.339)	(0.259)	(0.493)	(0.340)
	Single		0.030	0.195*	0.143	0.256**	0.370***	0.421***	0.251**	0.354**	0.406***
			(0.078)	(0.105)	(0.098)	(0.121)	(0.138)	(0.134)	(0.121)	(0.138)	(0.134)
Formal education (years)		0.114***	0.251***	0.407***	0.069***	0.191***	0.336***	0.070***	0.191***	0.337***	
		(0.011)	(0.012)	(0.011)	(0.014)	(0.015)	(0.014)	(0.014)	(0.015)	(0.014)	
Household size		-0.002	-0.007	0.004	0.004	0.001	0.010	0.005	0.001	0.010	
		(0.006)	(0.009)	(0.008)	(0.009)	(0.010)	(0.010)	(0.009)	(0.010)	(0.010)	
Location (1 = rural)		-0.775***	0.165	-0.511***	-0.009	0.734***	-0.044	-0.021	0.681***	-0.106	
		(0.109)	(0.126)	(0.135)	(0.152)	(0.161)	(0.172)	(0.153)	(0.162)	(0.172)	
Job-related factors	Uniformed police	0.453***	-0.165*	-0.176**	0.390***	-0.152	-0.227**	0.399***	-0.135	-0.216**	
		(0.061)	(0.084)	(0.078)	(0.087)	(0.102)	(0.097)	(0.087)	(0.102)	(0.097)	
Job duration (years)		0.022*	-0.098***	-0.061***	0.006	-0.144***	-0.074***	0.009	-0.136***	-0.066***	
		(0.012)	(0.019)	(0.016)	(0.016)	(0.023)	(0.020)	(0.017)	(0.022)	(0.020)	
Literacy-related factors	Attendance (months)	0.014*	0.063***	0.067***	0.010	0.062***	0.064***				
		(0.007)	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)				
	Between 1-9 months							-0.609***	0.873**	0.471	
								(0.233)	(0.438)	(0.369)	
	Between 10-18 months							-0.540**	1.532***	1.280***	
								(0.260)	(0.455)	(0.387)	
	Between 19-27 months							0.260	2.602***	2.216***	
								(0.339)	(0.505)	(0.445)	
	Between 28-36 months							-1.247***	1.236**	1.146**	
							(0.368)	(0.527)	(0.454)		
UNESCO/MoI				-0.363**	0.069	0.471***	-0.343**	0.009	0.426**		
				(0.143)	(0.170)	(0.168)	(0.144)	(0.170)	(0.168)		
GIZ				-0.193	-0.202	0.238	-0.190	-0.181	0.262*		
				(0.130)	(0.157)	(0.156)	(0.130)	(0.157)	(0.156)		
NTMA				1.105***	0.695**	0.626**	1.136***	0.687**	0.638**		
				(0.258)	(0.303)	(0.303)	(0.259)	(0.304)	(0.304)		
Literacy training		0.703***	1.445***	1.007***							
		(0.075)	(0.106)	(0.095)							

Variables		Total sample								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Language (Dari/Pashto)	Both	-0.653** (0.263)	-0.768** (0.322)	-1.862*** (0.272)	-0.549 (0.364)	-1.032*** (0.374)	-1.997*** (0.334)	-0.567 (0.364)	-1.066*** (0.375)	-2.021*** (0.335)
	Only 1 of them	-0.799*** (0.260)	-1.052*** (0.319)	-1.942*** (0.268)	-0.371 (0.360)	-0.926** (0.370)	-1.803*** (0.329)	-0.389 (0.360)	-0.962*** (0.370)	-1.834*** (0.330)
	One of them + other	-0.322 (0.267)	-0.736** (0.329)	-1.695*** (0.279)	-0.051 (0.365)	-0.851** (0.379)	-1.679*** (0.338)	-0.051 (0.366)	-0.881** (0.379)	-1.697*** (0.339)
	Constant	0.087 (0.394)	-2.730*** (0.594)	-1.497*** (0.480)	0.540 (0.541)	-1.581** (0.723)	-1.072* (0.597)	1.102* (0.579)	-2.142** (0.832)	-1.245* (0.685)
	Observations	8083	8083	8083	4783	4783	4783	4783	4783	4783
	Log likelihood	-8815	-8815	-8815	-5649	-5649	-5649	-5635	-5635	-5635
	Pseudo R ²	0.184	0.184	0.184	0.13	0.13	0.13	0.132	0.144	0.144

Note 1: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1. Note 2: Test statistics for Hausman and Small-Hsiao Tests were found to be statistically insignificant, indicating that the IIA assumption holds for all sets of regressions.

Source: Authors' calculations.

TABLE 13. MULTINOMIAL LOGISTIC REGRESSIONS. DEPENDENT VARIABLE: NUMERACY LITERACY SKILLS

Variables		Total sample			With literacy training						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
		P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	
Age		-0.029***	0.000	-0.001	-0.024*	0.003	0.003	-0.022*	0.003	0.003	
		(0.008)	(0.008)	(0.009)	(0.012)	(0.011)	(0.012)	(0.013)	(0.011)	(0.012)	
	Gender		-0.360	0.274	0.518*	0.092	0.744**	1.217***	0.048	0.694**	1.112***
			(0.250)	(0.263)	(0.311)	(0.335)	(0.336)	(0.395)	(0.336)	(0.336)	(0.393)
	Single		-0.052	-0.184**	0.032	-0.113	-0.077	0.165	-0.128	-0.103	0.144
			(0.094)	(0.093)	(0.105)	(0.164)	(0.152)	(0.161)	(0.164)	(0.152)	(0.161)
	Formal education (years)		0.118***	0.276***	0.463***	0.013	0.179***	0.353***	0.012	0.178***	0.351***
		(0.019)	(0.017)	(0.017)	(0.024)	(0.021)	(0.021)	(0.024)	(0.021)	(0.021)	
Household size		-0.006	0.001	0.006	0.003	0.006	0.004	0.003	0.004	0.003	
		(0.008)	(0.007)	(0.008)	(0.012)	(0.011)	(0.012)	(0.012)	(0.011)	(0.012)	
Location (1 = rural)		-0.928***	-0.489***	-0.722***	-0.300	0.175	-0.125	-0.296	0.149	-0.167	
		(0.129)	(0.116)	(0.142)	(0.211)	(0.187)	(0.206)	(0.211)	(0.187)	(0.206)	
Job-related factors	Uniformed police	0.419***	0.036	-0.354***	0.108	0.006	-0.457***	0.128	0.037	-0.436***	
		(0.076)	(0.074)	(0.085)	(0.120)	(0.111)	(0.119)	(0.120)	(0.111)	(0.119)	
Job duration (years)		0.011	-0.025*	0.007	-0.068***	-0.092***	-0.035	-0.067***	-0.085***	-0.030	
		(0.015)	(0.015)	(0.017)	(0.023)	(0.021)	(0.022)	(0.023)	(0.021)	(0.022)	
Literacy-related factors	Attendance (months)	0.050***	0.083***	0.098***	0.050***	0.077***	0.093***				
		(0.012)	(0.011)	(0.012)	(0.012)	(0.011)	(0.012)				
	Between 1-9 months							0.285	0.545**	1.026***	
								(0.282)	(0.274)	(0.355)	
	Between 10-18 months							0.587*	1.215***	1.906***	
								(0.333)	(0.319)	(0.395)	
	Between 19-27 months							0.699	1.600***	2.430***	
								(0.446)	(0.416)	(0.480)	
	Between 28-36 months							0.893*	0.958*	2.386***	
							(0.517)	(0.501)	(0.548)		
UNESCO/Mol				-0.033	0.018	-0.114	-0.073	-0.047	-0.195		
				(0.194)	(0.184)	(0.194)	(0.195)	(0.184)	(0.194)		
GIZ				-0.188	0.050	-0.258	-0.128	0.131	-0.184		
				(0.181)	(0.171)	(0.180)	(0.181)	(0.171)	(0.180)		
NTMA				0.634*	1.009***	0.793**	0.621	0.996***	0.776**		
				(0.385)	(0.361)	(0.373)	(0.386)	(0.361)	(0.373)		
Literacy training		0.690***	1.142***	1.172***							
		(0.100)	(0.096)	(0.108)							

Variables		Total sample			With literacy training					
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Language (Dari/Pashto)	Both	0.343 (0.286)	-0.250 (0.247)	0.079 (0.292)	-0.085 (0.423)	-0.932** (0.364)	-0.594 (0.397)	-0.129 (0.422)	-0.974*** (0.364)	-0.637 (0.397)
	Only 1 of them	0.500* (0.283)	-0.030 (0.243)	-0.013 (0.289)	0.385 (0.419)	-0.417 (0.361)	-0.301 (0.394)	0.354 (0.419)	-0.450 (0.360)	-0.345 (0.394)
	One of them + other	0.415 (0.295)	0.266 (0.254)	0.233 (0.301)	0.268 (0.430)	-0.121 (0.371)	-0.138 (0.405)	0.222 (0.430)	-0.169 (0.370)	-0.192 (0.405)
	Constant	0.191 (0.465)	-0.743* (0.442)	-2.126*** (0.521)	1.011 (0.689)	0.496 (0.635)	-0.881 (0.708)	0.992 (0.730)	0.340 (0.678)	-1.382* (0.775)
	Observations	8083	8083	8083	4783	4783	4783	4783	4783	4783
	Log likelihood	-9079	-9079	-9079	-5346	-5346	-5346	-5350	-5350	-5350
	Pseudo R ²	0.175	0.184	0.184	0.124	0.124	0.124	0.124	0.124	0.124

Note 1: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Note 2: Test statistics for Hausman and Small-Hsiao Tests were found to be statistically insignificant, indicating that the IIA assumption holds for all sets of regressions.

Source: Authors' calculations.

4. CONCLUSIONS

There is a general consensus that an educated and trained workforce will enable the ANP to accomplish its mission and ensure its sustainability and credibility over time. In this spirit, MoI, UNESCO and other partners have been focusing on delivering police literacy trainings to patrol officers, which will enable them to perform their duties and responsibilities more efficiently and effectively. Up to now, relatively little was known about the impact of such programmes, primarily because of the lack of data. This study constitutes the first rigorous analysis of the effects of police literacy trainings in the context of the ANP.

Our decision to define literacy in terms of varying levels of skills for the three literacy dimensions, rather than to remain within the classical dichotomous definition, was based on the fact that the levels at which individuals develop their literacy skills are uneven as literacy involves the integration of many cognitive skills. The evidence presented in this study provides support for continuing to use a skills-based definition of literacy in further analysis.

The ELTS study provided clear evidence of significant relationships between participation in literacy trainings and literacy levels (reading, writing, numeracy), controlling for other important variables such as prior schooling, location and attendance in months. The findings reveal that illiteracy is not an exclusive issue of people with no prior formal education, but also of those who received poor quality education. From an educational perspective, it is advisable that literacy trainings continue as one of the ingredients to build a literate and effective police force.

Overall, this study provides evidence on two steps in the causal chain from literacy training to literacy levels of patrol officers. First, the QLTS study has shown that overall UNESCO trainings have been delivered in line with good practices of literacy classes delivery. Across the sample, no implementation failures have been noted. Together with the evidence of the ELTS, which shows positive statistically significant relationships between participation in literacy training¹³ and literacy levels, we can therefore conclude that UNESCO literacy trainings have been effective and provide an important contribution to enhancing the literacy levels (reading, writing, numeracy) of patrol officers of the ANP.

¹³ Impact analysis of literacy trainings of trainings organized by specific organizations was not possible as respondents were often not sure about the organization that had provided the trainings. This is especially true for the UNESCO-MoI collaboration.

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ANNEXES

ANNEX 1 DATA COLLECTION TOOLS AND DATA ANALYSIS FOR QLTS STUDY

A1.1 Data collection tools

A1.2 Data Analysis

ANNEX 2 DATA COLLECTION TOOLS AND DATA ANALYSIS FOR ELTS STUDY

A2.1 Data collection tools of the APLS

A2.1.1 Literacy assessment tool

A2.1.2 Individual questionnaire

A2.2 Data analysis and methodological approach

A2.2.1 Definition of dependent variables

A2.2.2 Definition of independent variables

A2.2.3 Methodological approach: Ordered logit model

A2.2.4 Methodological approach: Multinomial logit model

A2.3 Additional descriptive tables and figures

A.2.4 Additional estimations of literacy levels: reading, writing, numeracy

ANNEX 1: DATA COLLECTION TOOLS AND DATA ANALYSIS FOR QLTS STUDY

A1.1 DATA COLLECTION TOOLS

TABLE A1.1.1. FACILITATOR SURVEY

ID:	(filled out beforehand: the facilitator questionnaire, scorecard and commander questionnaire relating to a specific literacy class should all have the same ID)	
A IDENTIFICATION		
1	Age facilitator	
2	Gender facilitator	<input type="checkbox"/> Male <input type="checkbox"/> Female
3	What language(s) do you speak fluently?	<input type="checkbox"/> Pashto <input type="checkbox"/> Dari <input type="checkbox"/> English <input type="checkbox"/> Other (please specify):
B BACKGROUND		
4	What is the highest level of education that you have obtained?	<input type="checkbox"/> 6th (Primary) <input type="checkbox"/> 9th (Secondary) <input type="checkbox"/> 12th (High School) <input type="checkbox"/> Bachelor Degree <input type="checkbox"/> Master Degree
5	Are you currently a police man/woman of the Afghanistan National Police?	a. <input type="checkbox"/> Yes <input type="checkbox"/> No
	If 5a Yes, what is your rank?	b. <input type="checkbox"/> Sergeant <input type="checkbox"/> Corporal <input type="checkbox"/> Lieutenant <input type="checkbox"/> Colonel <input type="checkbox"/> Captain <input type="checkbox"/> Other (please specify): How many years have you served in the Afghanistan National Police?
	If 5a No, have you been a police man/woman of the Afghanistan National Police in the past?	c. <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, what was your rank? <input type="checkbox"/> Sergeant <input type="checkbox"/> Corporal <input type="checkbox"/> Lieutenant <input type="checkbox"/> Colonel <input type="checkbox"/> Captain <input type="checkbox"/> Other (please specify): How many years have you served in the Afghanistan National Police?
	If 5a No, do you have any other occupation apart from being a facilitator of police literacy trainings?	d. <input type="checkbox"/> Yes <input type="checkbox"/> No

C EXPERIENCE AND MOTIVATION		
6	Have you ever worked previously in any kind of teaching role?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, what was your role? <input type="checkbox"/> Trainer <input type="checkbox"/> Instructor <input type="checkbox"/> Teacher <input type="checkbox"/> Lecturer <input type="checkbox"/> Other (please specify):
7	Why did you decide to become a facilitator in this programme?	I wanted to try something different: <input type="checkbox"/> Yes <input type="checkbox"/> No I was commanded to become a facilitator: <input type="checkbox"/> Yes <input type="checkbox"/> No I have a passion for teaching: <input type="checkbox"/> Yes <input type="checkbox"/> No It allowed me to take time out of my other work duties: <input type="checkbox"/> Yes <input type="checkbox"/> No I saw it as a way to develop my career: <input type="checkbox"/> Yes <input type="checkbox"/> No I saw it as a way of gaining recognition from my peers: <input type="checkbox"/> Yes <input type="checkbox"/> No Other (please specify):
8	Would you like to continue being a facilitator?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, why? If No, why?
D TRAINING FOR LITERACY PROGRAMME		
9	How many weeks ago did you complete your facilitator training?	
10	How many days of training did you receive to prepare you for your facilitator role?	
11	After you completed your training, did you receive any follow-up support?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, then what kind of support?
12	How useful was the training (TTT) for your work? For each of the following statements, please rate your response with a number between 1 and 3, with 1 = not useful, 2 = useful, 3 = very useful	a. I am able to develop daily lessons plan and develop supplementary learning materials: b. I am able to arrange the logistics, time, class, and ensure attendance: c. I am able to facilitate a learning environment to the learners: d. I am able to deliver lessons and engage the learners in learning activities: e. I am able to assess the degree of learning: f. I am able to see what went well and what needs improvement in my own teaching:
13	Do you feel you need more training?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, on what topic:

E CONTEXT AND SUPPORT	
14	How would you rate the security situation in your district (where you give the classes)? 1 = safe, 2 = moderately safe, 3 = unsafe
15	Does the MoI or GIZ/UNESCO support you in your work as a facilitator? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, then name the organization: <input type="checkbox"/> UNESCO <input type="checkbox"/> GIZ What is the nature of the support? <input type="checkbox"/> Providing books and teaching materials <input type="checkbox"/> Providing regular trainings <input type="checkbox"/> Other, please specify:
16	Do you feel supported by the commander of the police unit? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, then please state why:
17	Do you feel supported by your colleagues (police men/women)? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, then please state why:
18	When learners are graduating from this literacy course, do they have opportunities for further education? <input type="checkbox"/> Yes <input type="checkbox"/> No
19	What are the most important challenges that you face in doing your work as a facilitator?
F OTHER	
20	How often do you assess what learners have learned from the classes? <input type="checkbox"/> At least once a month I do a test or ask learners <input type="checkbox"/> Less than once a month <input type="checkbox"/> Never
21	Do you think the current text books for police literacy trainings are adequate? <input type="checkbox"/> Yes <input type="checkbox"/> No
22	How can the teaching learning environment be improved?
Signature of Assessor:	
Signature of Facilitator:	

TABLE A1.1.2. CLASSROOM OBSERVATION FORM

A GENERAL INFORMATION/IMPLEMENTING AGENCY				
	Province	District	Segment	Present students
1	Name of Assessor			
2	Date of the Visit			
3	Time of the Visit (e.g. 10:00-11:30)			
4	Time of class			
5	Class Location (Province, District, Village/Area)			
6	Establishment Date of Course			
7	Is the classroom proper for learning?			<input type="checkbox"/> Yes <input type="checkbox"/> No If No, write the reason
8	The Number of Registered Learners			Male: Female:
9	The Number of Today's Attendants			Male: Female:
10	The Number of Permanent Absent			Male: Female:
	Reasons for Permanent Absence:			
B AVAILABILITY OF TEACHING/LEARNING MATERIALS				
11	Number of learners who have textbooks			
12	Number of learners who have stationeries (notebooks and pens/pencils)			
13	Board	<input type="checkbox"/> Yes <input type="checkbox"/> No	Duster	<input type="checkbox"/> Yes <input type="checkbox"/> No
14	Chalk/Marker	<input type="checkbox"/> Yes <input type="checkbox"/> No	Floor Mat/Chair	<input type="checkbox"/> Yes <input type="checkbox"/> No
C STARTING OF THE LESSON				
15	Does the Facilitator have a lesson plan?			<input type="checkbox"/> Yes <input type="checkbox"/> No
16	Does the Facilitator utilise the lesson plan?			<input type="checkbox"/> Yes <input type="checkbox"/> No
17	Is the Facilitators' appearance clean?			<input type="checkbox"/> Yes <input type="checkbox"/> No
18	Does the Facilitator check the attendance sheet?			<input type="checkbox"/> Yes <input type="checkbox"/> No
19	Does the Facilitator start the lesson according to the time schedule?			<input type="checkbox"/> Yes <input type="checkbox"/> No
20	Name of textbook			<input type="checkbox"/> Let's Learn <input type="checkbox"/> Land Afghan (Basic) <input type="checkbox"/> Land Afghan (Post) <input type="checkbox"/> Others (please specify)

D	CLASS ACTIVITIES	LANGUAGE	MATH
21	Page number of today's lesson		
22	Does the Facilitator check homework of previous lesson?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
23	Does the Facilitator introduce today's topic in relation with the previous lesson?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
24	Does the Facilitator introduce today's topic in relation with the learners' life?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
25	Please explain the reason why you if you didn't see the above points		
26	Does Facilitator use various teaching methods?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
27	If the answer is YES, please check the methods used by the Facilitator.		
28	What supplementary teaching materials does the Facilitator use?		
29	How does the Facilitator involve learners in the lesson?		
30	Does the Facilitator give all learners exercises?	<input type="checkbox"/> Yes <input type="checkbox"/> Some <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> Some <input type="checkbox"/> No
31	Does the Facilitator encourage learners to improve their skills?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

E	ENDING OF THE LESSON		
32	Does the Facilitator check learners' understanding level based on today's lesson?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
33	Does the Facilitator summarise today's lesson?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
34	Does the Facilitator give relevant homework?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Signature of Assessor:	Signature of Facilitator:
------------------------	---------------------------

TABLE A1.1.3. COMMANDER SURVEY

ID:	(filled out beforehand: the facilitator questionnaire, scorecard and commander questionnaire relating to a specific literacy class should all have the same ID)		
	Open ended questions		
1	How well do you feel the literacy training programme is being run? (Do you feel the facilitators are being well trained? Are they doing a good job of training the officers? Do the facilitators and officers take it seriously?)		
2	Are you in favour of the programme? (What benefits does it produce? And are there any disadvantages to the programme?)		
3	How do you feel the quality of the literacy training provided by the facilitators could be improved?		
<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; height: 100px; vertical-align: top;">Signature of Observer:</td> <td style="width: 50%; height: 100px; vertical-align: top;">Signature of Commander:</td> </tr> </table>		Signature of Observer:	Signature of Commander:
Signature of Observer:	Signature of Commander:		

A1.2 DATA ANALYSIS

The attribution of weights through MCA is calculated based around the variation in the values of each of the components. Tabulated below are the principal coordinates for each of the components. They can be used to assess their dispersion, with greater distances between the components' possible answers signifying lower variation.

TABLE A1.2.1. CONSTRUCTION OF QUALITY INDICES

COMPONENT	OVERALL INDEX	LANGUAGE-SPECIFIC INDEX	MATH-SPECIFIC INDEX
Have a lesson plan:			
Yes	0.0879106	0.10856	0.0739767
No	-0.3792221	-0.464368	-0.333682
Have an attendance sheet:			
Yes	0.0568822	0.069936	0.047234
No	-0.4746723	-0.5894603	-0.4232895
Start lesson on time:			
Yes	0.2697334	0.2065567	0.2409445
No	-0.4469112	-0.3556183	-0.4300729
Checks homework at the start of the lesson:			
Yes	0.2239344	0.087318	0.1669105
No	-0.5252783	-0.3318085	-0.591507
Introduces topic in relation to previous lesson:			
Yes	0.3105214	0.1550668	0.2576713
No	-0.4475985	-0.4215195	-0.4522954
Introduces topic in relation to learners' life:			
Yes	0.2853463	0.144066	0.2420952
No	-0.5201626	-0.5602568	-0.5133584
Utilises various teaching methods:			
Yes	0.2220909	0.0987089	0.2020497
No	-0.5397653	-0.4331105	-0.6419966
Gives all learners exercises:			
Yes	0.1528474	0.0562999	0.1385186
No	-0.1981834	-0.1227744	-0.3043989
Encourages learners to improve skills:			
Yes	0.2558818	0.1048147	0.1945539
No	-0.4740548	-0.417281	-0.5806686

COMPONENT	OVERALL INDEX	LANGUAGE-SPECIFIC INDEX	MATH-SPECIFIC INDEX
Checks learners' understand at lesson end:			
Yes	0.2332516	0.1096068	0.1684714
No	-0.6209536	-0.563328	-0.6870987
Summarizes lesson at lesson end:			
Yes	0.2439326	0.0730791	0.2046977
No	-0.552522	-0.4943587	-0.5316455
Gives relevant homework:			
Yes	0.1570423	0.0405487	0.1144252
No	-0.8326897	-0.628506	-0.873446
Utilises supplementary learning materials:			
Yes	0.3441216	0.0520798	0.2270408
No	-0.3080249	-0.0896632	-0.4263322
Involves learners in the lesson:			
Yes	0.2804004	0.1018357	0.2994971
No	-0.4167419	-0.271562	-0.2971933

Source: Authors' calculations.

ANNEX 2: DATA COLLECTION TOOLS AND DATA ANALYSIS FOR ELTS STUDY

A2.1 DATA COLLECTION TOOLS OF THE APLS

A2.1.1 LITERACY ASSESSMENT TOOL

The literacy assessment tool was developed by UNESCO-Kabul to assess the literacy levels of Afghan police patrolmen/women. The tool consists of reading with understanding, writing and numeracy tests.

1. READING

The reading assessment consists of four simple reading tasks. In the space of just a few minutes, the interviewer with minimal training can place the interviewee at a specific rung on the ladder of basic reading ability.

1.1 Basic reading


STANDARD II LEVEL TEXT	STANDARD I LEVEL TEXT	
Story	Sentences	
Ahmad is a national patrolman. He works in Kabul-Jalalabad highway. He is always busy on patrolling. One day, he wanted to stop a car for checking but the car did not stop. Ahmad followed the car and stopped it. As a result of that follow-up, three rifles were found inside the car. Ahmad took the driver under control and brought him to his commander.	Jamila is a national patrolwoman. She works in female prison in Kandahar. She records the visitors. She guides the visitors.	
	Letters	Common words
	C T F Z N G H A K S	Flag Rifle Traffic Country Logo Soldier Defense Duty Service Prison
This text should be read after level I.	The respondent should read words when he/she cannot read sentences and the letters when cannot read words.	

1.2 Basic understanding

ANSWER YES OR NO.	YES	NO
Ahmad is a patrolman.		
He works in Kandahar.		
Ahmad followed the car and stopped it.		
He found five rifles in the car.		
He took the driver to prison.		

1.3 General knowledge

Draw a line from each word to the related sign.

Danger	
Stop	
No weapon	
Quiet	
No cell phones	

1.4 Reading speed

Respondent must read the words as fast as he/she can to see how many words he/she can read in 1 minute.

If the respondent makes a mistake, do not correct or stop him/her, just make a dot on a separate piece of paper.

After 1 minute, stop and circle the last word. Count the number of dots to show how many words he/she read wrongly.

1	I	21	hat	41	was	61	what
2	Am	22	jug	42	few	62	take
3	Me	23	us	43	cup	63	make
4	Fun	24	see	44	head	64	write
5	Yes	25	my	45	wet	65	clinic
6	We	26	dog	46	how	66	give
7	Hot	27	bed	47	show	67	cup
8	The	28	fun	48	shop	68	road
9	Had	29	but	49	taxi	69	house
10	Hand	30	was	50	work	70	here
11	Mom	31	Is	51	day	71	then
12	Not	32	got	52	stay	72	teeth
13	At	33	mud	53	ten	73	and
14	Men	34	no	54	sum	74	mind
15	Had	35	on	55	go	75	protect
16	Will	36	she	56	up	76	love
17	Book	37	me	57	stop	77	your
18	Help	38	sum	58	no	78	child
19	Pen	39	who	59	go	79	lamp
20	Boy	40	when	60	very	80	community

A. Number of the last word the learner read	
B. Number of the mistakes the learner made (dots)	
C. Number of correct words per minute (A - B = C)	

2. WRITING

WORDS/PHRASES FOR DICTATION

stop	Car	bag	attention	drive slow
check	Open	duty	get up	sit down

2.1 Dictation

Write FIVE dictated words or phrases









2.2 Filling the form

Please fill in your details into this form

Father's Name	
Surname	
ID Number	
Date of birth	<input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (Day/Month/Year)
Sex	
Address	
Province	
District	
Village/City:	
Today's date:	<input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (Day/Month/Year)
Signature	

3. NUMERACY

3.1 Identification of numbers

COUNT THE SYMBOLS AND WRITE THE NUMBER TO THE RIGHT.	NUMBER
	
	
	
	
	
	
	
	

3.2 Basic arithmetic

Number recognition (10 to 99)	Addition (2 digits without carry over)	Subtraction (2 digits without borrow)	Multiplication (1 digit with carry over)	Division (1 digit without remainder)
65 77	$21 + 62 =$	$49 - 27 =$	$72 \times 6 =$	$84 \div 7 =$
38 46	$35 + 32 =$	$68 - 35 =$	$32 \times 5 =$	$60 \div 5 =$
28 91	$12 + 57 =$	$76 - 43 =$	$96 \times 8 =$	$96 \div 8 =$
99 42	$73 + 26 =$	$83 - 61 =$	$84 \times 7 =$	$78 \div 6 =$
55 33	$82 + 11 =$	$98 - 54 =$	$45 \times 9 =$	$72 \div 9 =$
Ask the respondent to recognize any 5 numbers. At least 4 must be correct.	Ask the respondent to do any 2 addition problems. Both must be correct.	Ask the respondent to do any 2 subtraction problems. Both must be correct.	Ask the respondent to do any 1 multiplication problem. It must be correct.	Ask the respondent to do any 1 division problem. It must be correct.

1. Hamid earns 100 Afghanis. He spends half of his income. How much does he spend?

Work out the cost of a trip (Calculate the total cost of petrol, water, meal and make a grand total).

QUESTION	ITEM	UNIT	UNIT COST (AFGHANI)	TOTAL COST (AFGHANI)
2.	Petrol	10 Litre	45	
3.	Water	5 Litre	15	
4.	Meal	3 Times	150	
5.	Grand Total			

A2.1.2 INDIVIDUAL QUESTIONNAIRE

A. SURVEY INFORMATION

(Interview Assessment part of this section to be filled in AFTER all interviews are completed and interviewer has left the police unit for the last time.)

Form Serial Number

1. Location

1.1 Province		1.1A Province Code	
1.2 District		1.2A District Code	
1.3 City/Village		1.3A Urban/Rural 1 Urban 2 Rural 1.5	
1.4 Police District/Police Area		1.4A Police District/Police Area No.	
1.5 Police Unit		1.5A Police Unit No.	

2. Information of Police Unit

2.1 Total number of policewomen in police unit		2.1A No. of patrol policewomen working together	
2.2 Total number of policemen in police unit		2.2A No. of patrol policemen working together	

3. Interview Assessment

3.1 Status of interview (use codes below to fill in this row) 1 Completed 2 Unable to attend interview 3 Not at the UNIT 4 Other		3.1A Language of interview (use codes below to fill in this row) 1 Dari 2 Pashto 3 Uzbek 4 Turkmen 5 Other	
3.2 Enumerator/Interviewer's Name		3.2A Enumerator/Interviewer's Code	
3.3 Supervisor/Team Leader's Name		3.3A Supervisor/Team Leader's Code	
3.4 Date interviewed (dd/mm/yyyy in Afghan calendar)	□□ / □□ / 1394	3.4A Date supervised (dd/mm/yyyy in Afghan calendar)	□□ / □□ / 1394
3.5 Date interviewed (dd/mm/yyyy in English calendar)	□□ / □□ / 2015	3.5A Date supervised (dd/mm/yyyy in English calendar)	□□ / □□ / 2015
3.6 Enumerator/interviewer's Signature		3.6A Supervisor/Team Leader's Signature	

B. DEMOGRAPHY

DM1.	DM2.	DM3.	DM4.	DM5.	DM6.	DM7.	DM8.	DM9.	DM10.	DM11.	DM12.	DM13.
Line No.	Name	Is [NAME] male or female?	What is your date of birth?	How old are you?	What is your marital status?	What is your province of birth?	What is your district of birth?	No. of members in your household	What is your mother tongue?	What is the main language you speak other than your mother tongue?	What is your level of this language proficiency?	When did you join this job?
	Patrolman/ woman	1 Male 2 Female	Afghan Calendar	Complete years	1 Unmarried 2 Married 3 Widower/ Widow 4 Divorced	Other Country (35) ▶ DM9			1 Dari 2 Pashto 3 Uzbek 4 Turkmen 5 Other	1 Dari 2 Pashto 3 Uzbek 4 Turkmen 5 Other	1 Understanding 2 Speaking 3 Professional 4 Native	Complete years

Line	Name	Sex	Month	Year	Age	Marriage	Province	Code	District	Code	Household Members	Mother Tongue	Second Language	Language Proficiency	Job Duration
01															
02															
03															
04															
05															

C. EDUCATION ATTAINMENT

ED1.	ED2.	ED3.	ED4.	ED5.	ED6.	ED7.	ED8.	ED9.	ED10.	ED11.	ED12.
Line No.	Name	Can you read newspaper or other materials in any language?	Can you write informal letter or other materials in any language?	Have you ever attended any literacy classes?	Who offered these classes?	How many months did you attend the class?	Have you ever attended school or pre-school?	What is the highest grade you completed at school?	Why didn't you go to school?	What is the highest level of education your father completed?	What is the highest level of education your mother completed?
	Copy from EARLIER PART	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No ▶ ED8 2 DK ▶ ED8	1 Mol 2 UNESCO LEAP 3 GIZ 4 NTMA (OTTS /HEIK/ Insight) 5 Other 8 DK		1 Yes 2 No ▶ ED10	0 Preschool 1-12 Grade 1-12 13 Technical/ Voc. Diploma 14 Bachelor 15 Master and above 16 Non-formal ▶ ED11	1 Could not afford` 2 School closed 3 Too far away 4 No gender friendly 5 Cultural reason	1 Never attended school 2 Preschool level 3 Primary level 4 Secondary Level 5 High school and above 6 Non-formal education	1 Never attended school 2 Preschool level 3 Primary level 4 Secondary Level 5 High school and above 6 Non-formal education

Line	Name	Reading	Writing	Literacy Class	Institution	No. of Months	Schooling	Grade	Reason	Father's Education	Mother's Education
01											
02											
03											
04											
05											

D1. LITERACY LEVEL (READING)							
LL1.	LL2.	LL3.	LL4.	LL5.	LL6.	LL7.	LL8.
Line No.	Name	Can [NAME] read the sentences from Tool 1.1 Basic Reading?	Can [NAME] read the words/letters?	Can [NAME] read the story?	How many questions does [NAME] answer correctly from Tool 1.2 Basic Understanding?	How many signs of does [NAME] match correctly from Tool 1.3 General Knowledge?	How many words does [NAME] read in 1 minute from Tool 1.4 Reading Speed?
	Copy from EARLIER PART	Ask respondent to read SENTENCES from Tool Book	Ask respondent to read WORDS/ LETTERS	Ask respondent to read STORY	Ask respondent to ANSWER the questions after story	Ask respondent to MATCH the words with signs	Ask respondent to read words in 1 minute
		1 Not ready 2 Reads some words 3 Reads all words with pauses LL5 4 Reads all words slowly LL5 5 Reads sentences at good pace LL5	1 Not ready 2 Reads some letters 3 Reads letters, not words 4 Reads words slowly 5 Reads words at good pace ▶ LL7	1 Not ready LL7 2 Reads few sentences LL7 3 Reads story with pauses 4 Reads story slowly 5 Reads story at good pace			SPEED (A-B=C)
Line	Name	Sentences	Words/Letters	Story	Understanding	General Knowledge	Fluency
01							
02							
03							
04							
05							

D2. LITERACY LEVEL (WRITING + NUMERACY)										
LL1.	LL2.	LL9.	LL10.	LL11.	LL12.	LL13.	LL14.	LL15.	LL16.	LL17.
Line No.	Name	How many dictated words does [NAME] write correctly from Tool 2.1 Dictation?	How many items does [NAME] filled correctly from Tool 2.2 Filling Form?	How many numbers does [NAME] count and fill from Tool 3.1 Number Identification?	Does [NAME] recognize 4 out of any 5 numbers correctly from Tool 3.2 Basic Arithmetics?	Does [NAME] solve 2 out of 5 problems on addition?	Does [NAME] solve 2 out of 5 problems on subtraction?	Does [NAME] solve 1 out of 5 problems on multiplication?	Does [NAME] solve 1 out of 5 problems on division?	How many word problems does [NAME] solve from Tool 3.3 Basic Calculation?
	Copy from EARLIER PART	Ask respondent to write 5 DICTATED words	Ask respondent to fill the FORM	Ask respondent to COUNT and fill number	Ask respondent to RECOGNIZE any 5 numbers	Ask respondent to solve any 2 problems on ADDITION	Ask respondent to solve any 2 problems on SUBTRACTION	Ask respondent to solve any 1 problem on MULTIPLICATION	Ask respondent to solve any 1 problem on DIVISION	Ask respondent to solve 5 problems on CALCULATION
					1 Yes 2 No	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No	1 Yes 2 No	
Line	Name	Dictation	Filling Form	Count Number	Recognize Number	Addition	Subtraction	Multiplication	Division	Calculation
01										
02										
03										
04										
05										

A2.2 DATA ANALYSIS AND METHODOLOGICAL APPROACH

A2.2.1 DEFINITION OF DEPENDENT VARIABLES

1. LITERACY

The dichotomous classification of literate versus illiterate has been widely used in the education literature as well as in national and international statistics. However, over the past decade, a number of scholars and policy makers have pointed out the deleterious effect this classification has had in the field of literacy, particularly when it comes to assessing the impact of educational policies or programmes. In this context, skill scores or levels are more appropriate alternatives for measuring learning achievements (Wagner 2008). The definition of skill levels, however, is not standard

and varies according to the context and scope of the assessment tools used. With this in mind, the literacy variables in the ELTS study were developed into three composite indicators (reading, writing, numeracy) defined on four skill levels.

The literacy assessment tool included in the APLS comprises a number of tests (see A2.1.1)¹⁴ aimed at assessing the reading, writing and numeracy capabilities of the non-commissioned officers (patrolmen/women). Below, we describe how these tests relate to the overall composite indicators.

2. READING SKILLS

The set of exercises used to evaluate an individual's reading skills covered the following aspects:

- ▶ Ability to read sentences, words and short texts
- ▶ Reading comprehension and work-related knowledge (general knowledge)
- ▶ Reading speed

This information was used to construct a composite reading indicator of reading skills as discussed below.

Basic reading

In this part of the assessment tool, the participant's ability to read was tested through three reading exercises. The first one consisted of reading a set of sentences and was applied to all participants. Those who could not read any sentence or could read some words only were requested to do the second exercise and those who could read were asked to do the third exercise. The second exercise consisted of reading a set of words and letters and the third one consisted of reading a short story. In each exercise, participants were graded with reading levels depending on their performance.

Sentences	Score	Words/letters	Score	Story	Score
Cannot read	0	Cannot Read	0	Cannot Read	0
Read some words	1	Read some letters	0.25	Read few sentences	1
Read all words with pauses	2	Read letters, no words	0.5	Read story with pauses	2
Read all words slowly	3	Read words slowly	0.75	Read story slowly	3
Read at good peace	5	Read at good peace	1	Read at good peace	5

¹⁴ See also UNESCO (2015).

Based on a score system, the results of exercises 1 and 3 were rated from 0 to 5, while exercise 2 was scored with decimals ranging from 0 to 1 as it was administered to participants with lower or non-existent reading abilities (see the table above).

For the purpose of analysis, the reading indicator was constructed on the basis of a four-point Likert scale as follows.

	Ability to read	Score range
0	None	0 - 0.5
1	Low	0.75 - 2
2	Medium	3 - 6
3	High	7 - 10

A low reading ability indicates that the participant can read words and letters only. A participant with medium reading ability is able to read sentences and a story (although with pauses), and participants who read sentences and a story either slowly or at a good pace are considered to have high reading abilities.

Basic understanding and general knowledge

Two exercises tested the participants' ability to understand written texts, in this case the story they had previously read (reading exercise 3 under basic reading), as well as their general knowledge on five work-related symbols. The responses were scored on a five-point scale to construct the outcomes variables. Correct responses to the story-related questions received a score of 1. Similarly, each correct response to the work-related questions received a score of 1. Participants who either failed to answer all story-related questions or could not recognize any work-related symbols were rated with zero points. A four-skill level indicator was defined for each one of these exercises as indicated in the table below.

	Basic understanding/ General Knowledge	Score range
0	None	0
1	Low	1 - 2
2	Medium	3
3	High	4 - 5

Reading speed

The speed reading test measured the extent to which the participant was able to fluently read a list of 80 words. The four skill levels, which were defined on the number of words read by the participants, are presented below.

	Reading fluency	Number of words per minute
0	None	0
1	Low	1 - 26
2	Medium	27 - 53
3	High	54 - 80

Additionally, in order to be consistent with the scoring of the previous variables, we generated a numerical variable that ranges from 0-5. In theory, the average speed at which the participant should read each word to achieve 80 words per minute is 0.75 seconds. On a five-point score, we assigned 0.0625 points per each word the participant was able to read correctly.

It is worth mentioning that one of the inconsistencies with this variable is the fact that it contains information for those participants who failed the basic reading exercises (1-3). To address this issue, these participants were assigned zero points.

Composite reading indicator

The composite index for reading skills is obtained by adding the raw scores of all above reading exercises (except general knowledge) and is based on the decision rules.

	Composite reading skills	Score range
0	None	0
1	Low	1 - 9
2	Medium	10 - 17
3	High	18 - 25

The variable general knowledge was not included in the composite indicator as it distorted the final score. This distortion comes from the fact that this test, which comprised the identification of work-related symbols, was administered to all participants. Many of the participants who failed all reading exercises could still complete this identification test.

3. WRITING SKILLS

	Ability to write dictated words	Score range		Ability to fill in information	Score range
0	None	0	0	None	0
1	Low	1 - 2	1	Low	1 - 2
2	Medium	3 - 4	2	Medium	3 - 4
3	High	5	3	High	> 4

The writing test was comprised of two exercises: dictation and filling a form with specific information. The purpose of these exercises was to assess the individual's ability to write down five out of ten dictated words and to fill in information correctly. One point was given for each dictated word the participant wrote down correctly. As the other exercise comprised 10 fields, a score of 0.5 points was given for each piece of information the participant was able to insert correctly. Individuals who failed these exercises were given zero points.

The composite indicator for writing skills is obtained by adding up the scores of the individual tests and subsequently the following decision rules.

	Composite writing skills	Score range
0	None	0
1	Low	1 - 4
2	Medium	5 - 7
3	High	8 - 10

4. NUMERACY SKILLS

The exercises to test an individual's numeracy skills included counting and number recognition as well as basic calculation.

Counting numbers

This test comprised a total of ten counting exercises. Consistent with a five-point scale, each correct response received a score of 0.5 points.

	Ability to count numbers	Score
0	None	0
1	Low	1 - 2
2	Medium	3 - 4
3	High	> 4

Number recognition

In this part of the assessment, participants were asked to recognize five out of ten numbers. However, it was not possible to know how many numbers a participant was able to recognize due to the fact that the results were coded under a binary variable, distinguishing only between those who passed this exercise¹⁵ and those who did not.

Basic math operations

The test comprised five numerical exercises for each of the four basic math operations. While for the addition and subtraction problems the participant was requested to solve two of the five exercises, he/she was requested to solve just one of five multiplication and division problems. Similar to the variable for number recognition, results for each of these exercises were reported on a binary scale, distinguishing between those who passed and those who failed to complete the exercises.

¹⁵ To pass this exercise, a participant should recognize correctly at least four out of the ten numbers.

In some cases, it is possible to transform variables using different scales (Colman et al 1997). The results for number recognition and basic math operations are combined into a single variable using a five-point scale. The total score for numeracy skills is generated by summing the scores from all components and can range from 0 to 15.

Numeracy skills	Score range
Counting numbers	0 - 5
Number recognition and basic operations (addition, subtraction, multiplication and division)	0 - 5
Number of word math problems solved	0 - 5
Total score	0 - 15

This composite indicator was constructed on the basis of the following decision rules.

	Numeracy skills categories	Score range
0	None	0
1	Low	> 0 - <= 5
2	Medium	> 5 - <= 10
3	High	> 10

A2.2.2 DEFINITION OF INDEPENDENT VARIABLES

The various independent variables used in the ELTS study are described below:

Personal characteristics of patrol officers

- ▶ Age: The age of participant expressed in years.
- ▶ Gender: Dichotomous variable that takes the value of 1 for male police patrol officers and 0 for female patrol officers.
- ▶ Single: Dichotomous variable that takes the value of 1 for those individuals who are not married and 0 otherwise.
- ▶ Formal education: The educational attainment of an individual expressed in years. The total years of formal education was calculated from the highest grade of formal education the individual has attained. We attributed zero years of formal education to a total of 85 individuals who reported non-formal education as their highest educational attainment.
- ▶ Educational level: Refers to the level of education an individual has attained. According to the current class-based education system of Afghanistan, the level of education comprises the following categories:

Education Level	Range	Duration (years)
Pre-school		
Primary	Classes 1 to 6	6
Lower secondary education	Classes 7 to 9	3
Higher secondary education	Classes 10 to 12	3
Vocational/Technical education		3 to 5
University	Bachelor	4
Advanced education	Master or above	2 to 5

Demographic and household background factors

- ▶ Household size: The household size expressed in the number of household members.¹⁶
- ▶ Location: Dichotomous variable that takes the value of 1 for those individuals who live in rural areas and 0 otherwise.

¹⁶ A total of 25 married individuals misreported their household size as they indicated that their households were composed of only one member instead of two. In this case the household size was modified to 2 in order to remain in line with the standard definition of household.

Employment-related factors

- ▶ Uniformed police: This variable takes the value of 1 if a patrol officer is working at the uniformed police units and 0 otherwise.
- ▶ Job duration: Also known as job experience; refers to the number of years working as a patrol officer.

Literacy-related factors

- ▶ Literacy training: This variable takes the value of 1 for those individuals who attended any literacy program and 0 otherwise.
- ▶ Attendance: Attendance of literacy training programs expressed in months.

- ▶ UNESCO: This variable takes the value of 1 if the patrol officer has attended a literacy program provided by UNESCO in partnership with Mol and 0 otherwise.
- ▶ GIZ: Takes the value of 1 if the patrol officer has attended a literacy training provided by GIZ and 0 otherwise.
- ▶ NTMA: Takes the value of 1 if the patrol officer has attended a literacy training provided by NTMA and 0 otherwise.

A2.2.3 METHODOLOGICAL APPROACH: ORDERED LOGIT MODEL

The ordered logit model is often used to estimating models in which the outcome variables are of an ordinal and polychotomous nature. McKelvey and Zavoina (1975) presented this model in terms of an underlying latent variable while McCullagh (1980) developed independently the proportional odds model. As a latent variable model, the ordered logit model is defined as a continuous latent variable y_i^* which is a linear combination of explanatory variables, x and \mathcal{E} an error term. In the structural form, it can be written as:

$$y_i^* = \beta x_i + \mathcal{E}_i$$

y_i , the observed variable takes on values 0 through j according to the following scheme:

$$y_i = j \quad \text{if} \quad \mu_{j-1} < y_i^* \leq \mu_j \quad \text{for } j = 0 \text{ to } J$$

In the ELTS study, μ is the skill-level category of literacy ($j = 0$ to 3), is the vector of cutpoints (also called thresholds). The error term \mathcal{E} is assumed to be logistically distributed with mean 0, variance $\pi^2 / 3$ and a cumulative distribution function:

$$F(\mathcal{E}) = \exp(\mathcal{E}) / (1 + \exp(\mathcal{E})) = 1 / (1 + \exp(-\mathcal{E}))$$

Consequently:

$$Pr(Y_i = j) = Pr(y^* \text{ is in the } j \text{ th range})$$

Hence the probability of an observed outcome may be written:

$$Pr(y_i = j) = F(\mu_j - \beta x_i) - F(\mu_{j-1} - \beta x_i)$$

This implies that:

$$Pr(y_i = j) = \frac{1}{1 + e^{-\mu_j - \beta x_i}} - \frac{1}{1 + e^{-\mu_{j-1} - \beta x_i}}$$

The last equation can be used to derive a likelihood function and subsequently maximum likelihood estimates of threshold parameters μ and regression parameters β (Wooldridge 2002).

A2.2.4 METHODOLOGICAL APPROACH: MULTINOMIAL LOGIT MODEL

The multinomial logit model is used to predict the probabilities of the different possible outcomes of a categorically distributed dependent variable. The major advantages of this model are: (a) the multinomial logit model does not assume a linear relationship between the dependent and independent variables; (b) independent variables need not be expressed on an interval scale; (c) the model does not require that the independent variables be unbounded, and; (d) it does not assume that the error terms are normally distributed. These advantages make the multinomial logit model an attractive method for data analysis (Tabachnick and Fidell 2007).

This statistical model postulates a multinomial distribution for the dependent variable. Consider an outcome variable Y_i that may take one of several discrete values ($1, 2, \dots, K$), then $\pi_{ij} = Pr\{Y_i = j\}$ denotes the probability that the i -th individual's outcome falls in the k -th category. In the ELTS study, each skill-level literacy variable takes the values "none", "low", "medium" and "high", which are coded as 0, 1, 2 and 3. Then π_{i1} is the probability that the i -th individual has a low skill level of literacy.

When confronted with grouped data (e.g. age groups), it is necessary to use additional variables such as n_i which denotes the number of cases in the i -th group and Y_{ik} the number of responses from the i -th group that fall in the k -th category with observed value y_{ik} .

For individual data $n_i = 1$ Y_{ik} and becomes an indicator that takes the value 1 if the i -th individual's outcome falls in the k -th category and 0 otherwise, and $\sum_j y_{ij} = 1$, since one and only one of the indicators can be "on" for each case, then the probability distribution for Y_{ik} is given by the multinomial distribution:

$$Pr\{Y_{i1} = y_{i1}, \dots, Y_{ik} = y_{ik}\} = \binom{n_i}{y_{i1}, \dots, y_{ik}} \pi_{i1}^{y_{i1}} \dots \pi_{ik}^{y_{ik}}$$

The idea in the multinomial logit model is that one of the outcome categories is nominated as the baseline, hence the log odds for all other categories are calculated relative to the baseline (also referred to as the comparison group). Accordingly, the multinomial logit model can be thought of as simultaneously estimating binary logits for all comparisons among the outcome categories

(Long and Freese 2014). The multinomial logit model assumes that the log odds of each outcome category follow a linear model and can be formally written as:

$$n_{ij} = \log \frac{\pi_{ik}}{\pi_{iK}} = a_k + x_i \beta_k$$

Where a_j is a constant and β_j is a vector of regression coefficients, for $k = 1, 2, \dots, K-1$.

For instance, when the first category is nominated as a baseline, the odds that an individual's outcome falls in category k as opposed to the baseline are calculated as π_{iK} / π_{i1} . In the ELTS study, we look at the odds of having higher skill levels of literacy rather than having none.

The difference between the multinomial logit model and the logistic regression model is that the probability distribution of the dependent variable is multinomial instead of binomial and that it estimates $K-1$ equations instead of one. The $K-1$ multinomial logit equations contrast each of the categories $1, 2, \dots, K-1$ with category K , whereas the logistic regression equation is a contrast between two scenarios (e.g. participation and non-participation).

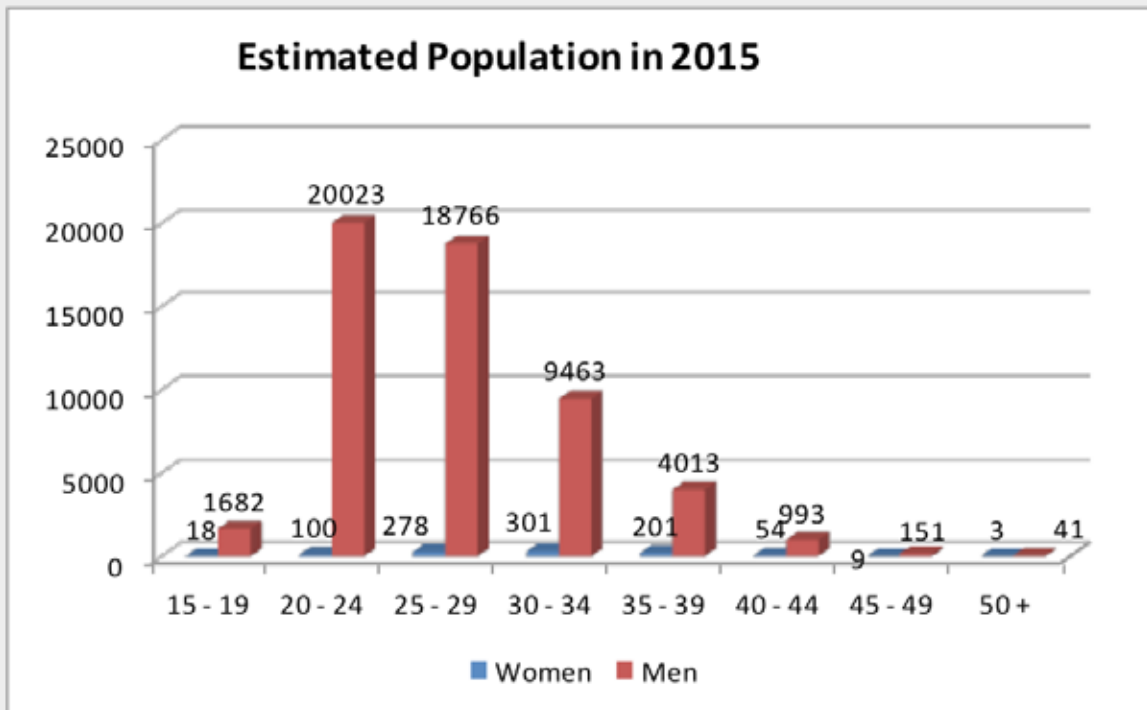
The marginal effect of x on the probability of observing that the outcome variable falls on the alternative k can be expressed as:

$$\frac{\delta Pr(Y_i = K)}{\delta x_i} = Pr(Y_i = K) [\beta_{kl} - \sum_{j=0}^k Pr(Y_i = j) \beta_{jl}]$$

Hence, the marginal effect of X on alternative k involves not only the parameters of k but also the ones of all other alternatives.

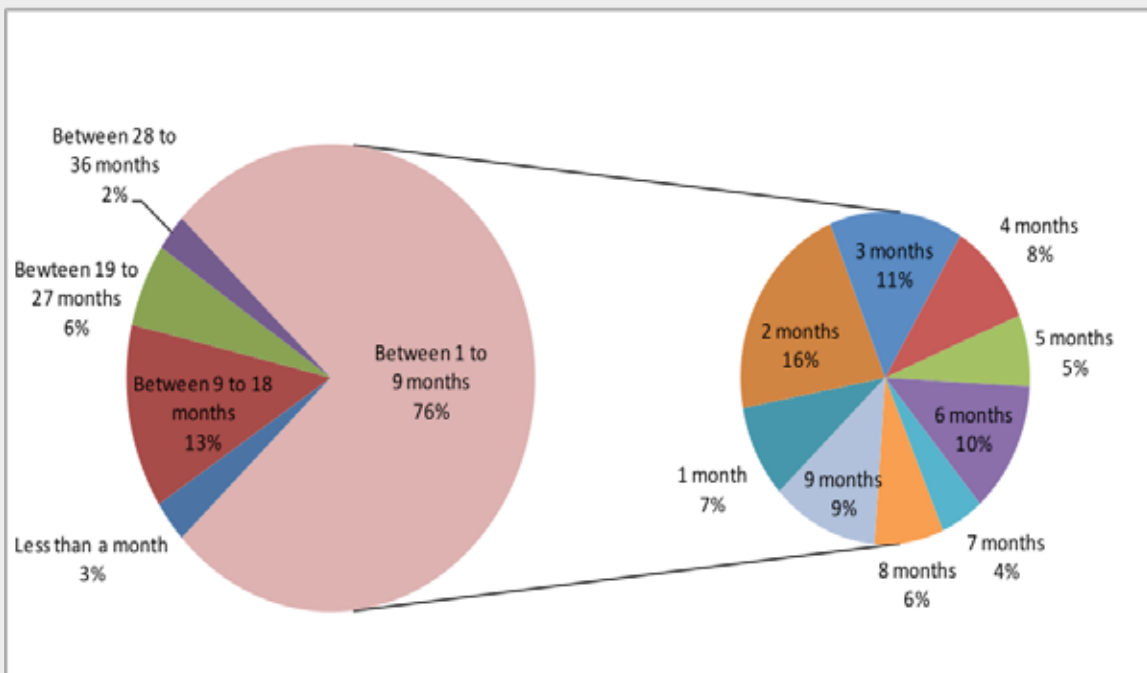
A2.3 ADDITIONAL DESCRIPTIVE TABLES AND FIGURES

FIGURE A2.1. ESTIMATED POPULATION OF THE PATROL OFFICERS BY AGE AND GENDER



Source: Authors' calculations.

FIGURE A2.2. ATTENDANCE AT LITERACY TRAININGS



Source: Authors' calculations.

TABLE A2.1. ESTIMATES OF TOTAL POPULATION'S EDUCATIONAL ATTAINMENT

Level of Education	None		UNESCO/Mol		GIZ		NTMA		Others		Total
	nr	%	nr	%	nr	%	nr	%	nr	%	nr
Never attended school	18235	69.6	5100	56.2	12097	61.8	1145	56.1	2480	58.6	39057
Pre-school	36	0.1	21	0.2	51	0.3	0	0.0	4	0.1	112
Primary education	3295	12.6	1941	21.4	3516	18.0	319	15.6	949	22.4	10020
Lower secondary education	1520	5.8	1003	11.0	2184	11.2	265	13.0	349	8.2	5,321
Higher secondary education	2761	10.5	1005	11.1	1630	8.3	203	10.0	443	10.5	6042
Vocational/technical education	235	0.9	7	0.1	73	0.4	108	5.3	10	0.2	433
University /advanced	130	0.5	4	0.0	23	0.1					144
Total	26212	100.0	9081	100.0	19574	100.0	2040	100.0	4235	100.0	61142
As share of total	42.9		14.9		32.0		3.3		6.9		100.0

Source: Authors' calculations.

TABLE A2.2. ESTIMATES OF TOTAL POPULATION'S ATTENDANCE BY LITERACY INSTITUTION

Period	UNESCO/Mol		GIZ		NTMA		Others		Total
	nr	%	nr	%	Nr	%	nr	%	Nr
Less than a month	65	0.7	678	3.5	23	1.1	251	5.9	1017
Between 1 to 9 months	8214	90.5	13098	66.9	1906	93.4	3336	78.8	26554
Between 10 to 18 months	595	6.6	3415	17.4	59	2.9	384	9.1	4453
Between 19 to 27 months	107	1.2	1720	8.8	27	1.3	156	3.7	2010
Between 28 to 36 months	100	1.1	663	3.4	25	1.2	108	2.6	896
Total	9081	100	19574	100	2040	100	4235	100	34930

Source: Authors' calculations.

TABLE A2.3. ESTIMATES OF TOTAL POPULATION'S PARTICIPATION INTO LITERACY TRAININGS BY PROVINCE

Region	Province	Female					Male					Total
		None		Literacy programme		Total	None		Literacy programme		Total	
		nr	%	nr	%	nr	nr	%	nr	%	nr	
Central	Kabul	113	53.8	97	46.2	210	4536	62.2	2751	37.8	7287	7497
	Kapisa		0.0	42	100.0	42	111	17.7	517	82.3	628	670
	Parwan	5	35.7	9	64.3	14	479	32.6	991	67.4	1470	1484
	Wardak	13	100.0		0.0	13	1281	85.5	217	14.5	1498	1511
	Logar	16	72.7	6	27.3	22	797	82.8	166	17.2	963	985
	Bamyan	7	28.0	18	72.0	25	247	31.4	540	68.6	787	812
East	Nangarhar	20	64.5	11	35.5	31	1205	39.5	1842	60.5	3047	3078
	Laghman	4	100.0		0.0	4	453	59.1	314	40.9	767	771
North East	Panjsher	12	42.9	16	57.1	28	35	5.7	579	94.3	614	642
	Baghlan		0.0	52	100.0	52	409	24.6	1254	75.4	1663	1715
	Kunar					0	755	35.6	1368	64.4	2123	2123
	Badakhshan	18	58.1	13	41.9	31	83	4.8	1635	95.2	1718	1749
	Takhar	6	24.0	19	76.0	25	259	11.5	1996	88.5	2255	2280
	Kunduz	8	18.6	35	81.4	43	366	20.6	1414	79.4	1780	1823
South East	Paktya		0.0	4	100.0	4	1331	48.2	1428	51.8	2759	2763
	Khost	16	80.0	4	20.0	20	1606	47.2	1795	52.8	3401	3421
	Kandahar	73	61.3	46	38.7	119	4455	61.6	2778	38.4	7233	7352
North West	Samangan					0	52	6.1	801	93.9	853	853
	Balkh	17	22.1	60	77.9	77	658	27.2	1760	72.8	2418	2495
	Saripul					0		0.0	634	100.0	634	634
	Jawzjan		0.0	18	100.0	18	88	13.4	570	86.6	658	676
	Faryab	8	66.7	4	33.3	12	806	27.6	2112	72.4	2918	2930
South west	Daykundi		0.0	26	100.0	26	74	6.1	1142	93.9	1216	1242
	Helmand	11	50.0	11	50.0	22	3087	69.9	1327	30.1	4414	4436
West	Ghor		0.0	14	100.0	14	341	25.8	983	74.2	1324	1338
	Badghis					0	12	0.8	1508	99.2	1520	1520
	Herat	98	53.6	85	46.4	183	2241	53.9	1918	46.1	4159	4342
Total		445	43.0	590	57.0	1035	25767	42.9	34340	57.1	60107	61142

Source: Authors' calculations.

TABLE A2.4. INDIVIDUALS' SELF-PERCEPTION OF THEIR READING AND WRITING ABILITIES

Education level	Literacy skills								Total
	None		Both		Only reading		Only writing		
	nr	%	nr	%	nr	%	nr	%	
With literacy training (a)									
Never attended school	2117	83.0	748	33.0	275	69.4	45	52.9	3185
Pre-school	4	0.2	5	0.2	1	0.3	1	1.2	11
Primary education	349	13.7	519	22.9	87	22.0	27	31.8	982
Lower secondary education	75	2.9	472	20.8	28	7.1	10	11.8	585
Higher secondary education	6	0.2	497	21.9	4	1.0	1	1.2	508
Vocational/technical education			23	1.0	1		1		25
University /advanced			4	0.2					4
Sub- total (a)	2551	100	2268	100	396	100	85	100	5300
As share of sub-total	48.1		42.8		7.5		1.6		100
Without literacy training (b)									
Never attended school	2201	86.3	141	15.8	114	65.1	14	53.8	2470
Pre-school	2	0.1	3	0.3	41	23.4			46
Primary education	246	9.6	160	17.9	17	9.7	10	38.5	433
Lower secondary education	35	1.4	172		1	0.6	2	7.7	210
Higher secondary education	4	0.2	373	41.7	2	1.1			379
Vocational/technical			27	3.0					27
University/advanced			18	2.0					18
Sub-total (b)	2488	100	894	100	175	100	26	100	3583
As share of sub-total	69.4		25.0		4.9		0.7		100
Total (a+b)	5039		3162		571		111		8883

Source: Authors' calculations.

A.2.4 ADDITIONAL ESTIMATIONS OF LITERACY LEVELS: READING, WRITING, NUMERACY

READING

TABLE A2.5. MARGINAL EFFECTS OF LITERACY-RELATED FACTORS ON READING LITERACY SKILLS (MULTINOMIAL MODELS)

Variables	Mlogit I			Mlogit II		
	(1)	(2)	(3)	(4)	(5)	(6)
	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Literacy-related factors						
Attendance (months)	0.004***	0.003***	0.003***			
	(0.001)	(0.001)	(0.001)			
Between 1-9 months				0.162***	-0.088**	-0.030
				(0.033)	(0.040)	(0.038)
Between 10-18 months				0.194***	-0.048	-0.015
				(0.037)	(0.042)	(0.041)
Between 19-27 months				0.135***	0.010	0.035
				(0.043)	(0.047)	(0.045)
Between 28-36 months				0.129**	-0.014	0.084
				(0.052)	(0.053)	(0.052)
UNESCO/MoI	-0.026	0.003	0.024	-0.038	0.007	0.025
	(0.024)	(0.017)	(0.017)	(0.024)	(0.017)	(0.017)
GIZ	-0.050**	0.035**	0.029*	-0.047**	0.039***	0.034**
	(0.022)	(0.015)	(0.015)	(0.022)	(0.015)	(0.015)
NTMA	0.072*	-0.055***	-0.059***	0.063	-0.050**	-0.055**
	(0.039)	(0.021)	(0.022)	(0.039)	(0.021)	(0.022)

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1; Number of observations: 4783.

Source: Authors' calculations.

WRITING

TABLE A2.6. ORDERED LOGISTIC MODEL. DEPENDENT VARIABLE: WRITING LITERACY SKILLS

Variables		Total sample	With literacy training
		(1) Ologit	(2) Ologit
	Age	0.005 (0.005)	0.011* (0.006)
	Gender	0.452*** (0.162)	0.783*** (0.204)
	Single	0.045 (0.057)	0.188** (0.075)
	Formal education (years)	0.275*** (0.006)	0.226*** (0.007)
	Household size	-0.002 (0.005)	0.004 (0.006)
	Location (1 = rural)	-0.318*** (0.076)	0.062 (0.092)
	Job-related factors	Uniformed police	-0.078* (0.045)
Job duration (years)		-0.038*** (0.009)	-0.059*** (0.012)
Literacy-related factors	Attendance (months)	0.042*** (0.004)	0.042*** (0.004)
	UNESCO/MoI		0.295*** (0.096)
	GIZ		0.125 (0.087)
	NTMA		0.120 (0.144)
	Literacy training	0.705*** (0.054)	
Language (Dari/Pashto)	Both	-1.163*** (0.158)	-1.426*** (0.193)
	Only 1 of them	-1.277*** (0.155)	-1.323*** (0.190)
	One of them + other	-1.092*** (0.161)	-1.283*** (0.194)
Cut values	cut1	-0.505* (0.278)	-0.891** (0.353)
	cut2	1.194*** (0.278)	0.787** (0.353)
	cut3	2.071*** (0.279)	1.743*** (0.353)
	Observations	8083	4783
	Pseudo R ²	0.166	0.111
Score test for proportional odds assumption		$X^2(26) = 395.64$ p-value=0.00	$X^2(30) = 413.88$ p-value=0.00

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

TABLE A2.7. TESTS OF IIA ASSUMPTION. ESTIMATIONS FOR WRITING SKILLS

Tests of IIA assumption		Total sample		With literacy training			
		X2	p-value	X2	p-value	X2	p-value
Hausman Test	Low	13.55	0.990	-29.67		-16.88	
	Medium	35.02	0.169	-2.24		62.79	0.007
	High	0.634	1.000	2.98	1.000	22.62	0.970
Small-Hsiao Test	Low	30.39	0.345	29.25	0.606	38.39	0.452
	Medium	21.11	0.821	33.71	0.385	34.38	0.638
	High	25.58	0.597	27.69	0.684	57.65	0.210

Source: Authors' calculations.

TABLE A2.8. MARGINAL EFFECTS OF LITERACY-RELATED FACTORS ON WRITING SKILLS (MULTINOMIAL MODELS)

Variables	Mlogit I			Mlogit II		
	(1)	(2)	(3)	(4)	(5)	(6)
	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Literacy-related factors						
Attendance (months)	-0.005*** (0.001)	0.005*** (0.001)	0.006*** (0.001)			
Between 1-9 months				-0.204*** (0.046)	0.093*** (0.025)	0.082** (0.039)
Between 10-18 months					0.138*** (0.029)	0.174*** (0.042)
Between 19-27 months					0.195*** (0.037)	0.202*** (0.047)
Between 28-36 months					0.131*** (0.045)	0.212*** (0.056)
UNESCO/MoI	-0.103*** (0.023)	0.003 (0.020)	0.092*** (0.020)	-0.093*** (0.023)	-0.004 (0.020)	0.087*** (0.020)
GIZ	-0.044** (0.021)	-0.029 (0.018)	0.058*** (0.018)	-0.045** (0.021)	-0.028 (0.018)	0.061*** (0.018)
NTMA	0.144*** (0.037)	-0.009 (0.030)	-0.024 (0.029)	0.149*** (0.037)	-0.013 (0.030)	-0.024 (0.029)

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1; Number of observations: 4783.

Source: Authors' calculations.

NUMERACY

TABLE A2.9. ORDERED LOGISTIC MODEL. DEPENDENT VARIABLE: NUMERACY LITERACY

Variables		Total sample	With literacy training
		(1)	(2)
		Ologit	Ologit
	Age	0.005 (0.005)	0.010* (0.006)
	Male	0.324** (0.154)	0.753*** (0.196)
	Single	-0.003 (0.056)	0.129* (0.077)
	Formal education (years)	0.275*** (0.006)	0.231*** (0.007)
	Household size	0.002 (0.005)	0.001 (0.006)
	Location (1 = rural)	-0.297*** (0.074)	0.029 (0.094)
	Job-related factors	Uniformed police	-0.245*** (0.044)
Job duration (years)		-0.002 (0.009)	-0.009 (0.012)
Literacy-related factors	Attendance (months)	0.037*** (0.004)	0.038*** (0.004)
	UNESCO/Mol		-0.067 (0.100)
	GIZ		-0.097 (0.091)
	NTMA		0.275* (0.157)
	Literacy training	0.786*** (0.054)	-0.423** (0.180)
Language (Dari/Pashto)	Both	-0.113 (0.153)	-0.393** (0.176)
	Only 1 of them	-0.209 (0.150)	-0.244 (0.181)
	One of them + other	-0.016 (0.156)	
Cut Values	cut1	-0.293 (0.268)	-1.103*** (0.344)
	cut2	0.992*** (0.268)	0.337 (0.343)
	cut3	2.888*** (0.270)	2.339*** (0.345)
	Observations	8083	4783
	Pseudo R ²	0.16	0.111
Score test for the proportional odds assumption		X ² ₍₂₆₎ =346.38 p-value=0.00	X ² ₍₃₀₎ =383.31 p-value=0.00

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

TABLE A2.10. TESTS OF IIA ASSUMPTION. ESTIMATIONS FOR NUMERACY SKILLS

Tests of IIA assumption		Total sample		With literacy training			
		X2	p-value	X2	p-value	X2	p-value
Hausman Test	Low	-20.81		0.094	1.000	-7.86	
	Medium	30.46	0.341	33.67	0.387	-123.03	
	High	47.42	0.012	-1.53		0.694	1.000
Small-Hsiao Test	Low	36.16	0.139	28.87	0.625	30.39	0.805
	Medium	19.85	0.870	36.68	0.260	25.08	0.947
	High	11.85	0.997	38.02	0.214	28.12	0.879

Source: Authors' calculations.

TABLE A2.11. MARGINAL EFFECTS OF LITERACY-RELATED FACTORS ON NUMERACY SKILLS (MULTINOMIAL MODELS)

Variables	Mlogit I			Mlogit II		
	(1)	(2)	(3)	(4)	(5)	(6)
	P(Y=Low)	P(Y=Medium)	P(Y=High)	P(Y=Low)	P(Y=Medium)	P(Y=High)
Literacy-related factors						
Attendance (months)	-0.003*** (0.001)	0.003*** (0.001)	0.005*** (0.001)			
Between 1-9 months				-0.037 (0.036)	0.006 (0.047)	0.092** (0.039)
Between 10-18 months				(0.038)	0.032 (0.050)	0.156*** (0.043)
Between 19-27 months				(0.041)	0.039 (0.055)	0.198*** (0.048)
Between 28-36 months				(0.049)	-0.100 (0.061)	0.263*** (0.057)
UNESCO/MoI	-0.001 (0.020)	0.019 (0.024)	-0.020 (0.021)	0.002 (0.020)	0.016 (0.024)	-0.025 (0.021)
GIZ	-0.020 (0.018)	0.053** (0.022)	-0.042** (0.019)	-0.021 (0.018)	0.059*** (0.022)	-0.040** (0.020)
NTMA	-0.026 (0.031)	0.082** (0.039)	-0.006 (0.033)	-0.025 (0.031)	0.083** (0.039)	-0.007 (0.033)

Note: Standard errors in parentheses; Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1; Number of observations: 4783.

Source: Authors' calculations.