

A METHOD OF ASSESSING TRACTOR DRIVERS UNDER TRAINING

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ABSTRACT

The assessment of illiterate trainees being taught the fundamentals of tractor driving is described. Knowledge, skill and temperament are assessed separately by one instructor whilst a second instructor teaches the trainees. Particular care is taken to avoid the trainees becoming aware of the fact that they are being graded. It has been shown that they become unsettled by examination conditions, and in such circumstances reliable assessments cannot be made.

Introduction

Present-day techniques for assessing a trainee's standard of knowledge, skills and temperament cannot be applied directly in the training of illiterate subjects. Conventional methods have to be modified to suit the standard of the student in order to arrive at a reasonably correct and unbiased assessment. The system which has been devised by the South African Sugar Association, and used now for more than six years in the training of tractor drivers, is described.

Objectives

The students

1. The tractor drivers accepted for a three-day course already have some driving experience. They are usually self-taught and have never been through any process of screening for the job. The employer sends them on a course, not only to improve their usefulness, but also to obtain a report on their suitability for the job. The trainer has to supply such information.
2. Very few of the drivers have been to school or, if they have, only for one or two years. Any formal examination unsettles them and the results therefore are seldom a true reflection. The system of testing must therefore be such that the candidates retain their composure.
3. An important characteristic of a good driver is reliability. This may be associated with the employee's temperament and his attitude towards his employer, the job itself and the equipment to be used. A satisfactory method of testing must therefore enable the instructor to assess these various factors.

The instructor

1. It is virtually impossible for an instructor to associate personally with his class and still be in a position to give an unbiased assessment of the individual students but bias must be avoided as much as possible.

2. To obtain a true picture of a student's ability, constant assessment is necessary and the more observations that are made, the more correct the conclusions are likely to be. The system must provide for as many observations as possible.
3. A single instructor cannot teach, test and record at the same time without either upsetting the class or giving inferior tuition. It is better for an assistant to do the assessing whilst the class is in progress.

Method

General principles

1. The documents used are as follows:

Appendix "A"	Programme
Appendix "B"	Main Course Record Sheet
Appendix "C"	Day One Assessment Sheet
Appendix "D"	Day Two Assessment Sheet
Appendix "E"	Day Three Assessment Sheet
Appendix "F"	Course Report Form
2. Having explained Appendix A and completed Appendix B, the instructor carries on with the programme. The assistant follows the lesson and awards points for each student's reaction, using Appendices C, D and E in succession.
3. The assessments are subsequently collated on the Main Course Record Sheet (Appendix B).
4. A final assessment is recorded on the individual Course Report (Appendix F), and this is strengthened with a short "Remark" from the instructor or leader.

System of marking

1. The student is assessed on:

KNOWLEDGE,	i.e. what he knows,
SKILL,	i.e. his ability to do things, and
TEMPERAMENT,	i.e. his attitude.
2. In the KNOWLEDGE and SKILL sectors, he is awarded:

2 for Good,
1 for Average, and
0 for Poor.
3. For the TEMPERAMENT assessment, the points are preceded by a plus (+) or a minus (−). These

signs play no role in the addition of those points but indicate an attitude.

<i>Plus</i>	<i>Minus</i>
Attentive	Bored
Calm	Confused
Cautious	Impulsive
Controlled	Inattentive
Energetic	Makes little effort
Interested	Nervous
Keen	Not interested
Methodical	Tense
Relaxed	Unmethodical
Steady	Variable

Where the assistant is in doubt as to a plus or a minus, he uses a zero, thus:

02 means *Good*, reaction neutral.

- In totalling the marks, figures are added without consideration of the plus or minus sign. The plus signs only are counted for an attitude rating.

Grading and standards

In the Course Report a specific grade is given:

Grade	Know- ledge	Skill	Tempera- ment
G (Good)	+60%	+65%	+80%
A (Average)	+45%	+50%	+65%
F (Failure)	-44%	-49%	-64%

The critical values are entirely at the discretion of the training co-ordinator. He may raise the levels where candidates are plentiful; he may adjust them to suit the harshness or mildness of the instructor's marking pattern; or he may change them for other reasons. He must endeavour, however, to stabilize the standards as soon as possible after commencing the system.

Assessing

The assessor need have little difficulty in using the grades to prepare the final course report. Some guide lines are as follows:

- Prepare a rough graph, plotting average marks obtained against student no., in decreasing order of merit (see Appendix G). Then plot separately the results for attitude, skills and knowledge on the same graph.
- Using this graph, identify those students having an unbalanced record, e.g.:

Student No. 4:	Knowledge	— low
	Skill	— bad
	Temperament	— relatively good

Appendix "A"

Three-day tractor driver course — Programme

Day One

From	To	Time		Subject
8.00	8.30	30	30	Welcome and course administration
8.30	9.30	60	1.30	Daily maintenance system
9.30	10.30	60	2.30	Tractor: Dashboard, starting and off
10.30	10.45	15	2.45	Morning break
10.45	12.30	105	4.30	Tractor: Controls; drive; stop; park
12.30	13.00	30	5.00	Traffic signs
13.00	14.00	60	6.00	Mid-day break
14.00	14.45	45	6.45	Regulations
14.45	15.00	15	7.00	Reckless driving
15.00	15.15	15	7.14	Accidents and reports
15.15	15.45	30	7.45	Quizzes
15.45	16.00	15	8.00	Revision and summary

Day Two

From	To	Time		Subject
8.00	10.00	120	2.00	Daily maintenance
10.00	10.30	30	2.30	Rules of the road
10.30	10.45	15	2.45	Morning break
10.45	12.15	90	4.15	Traffic signs
12.15	12.45	30	4.45	Tractor: Practical (elementary)
12.45	13.00	15	5.00	Tractor Care of tyres and wheels
13.00	14.00	60	6.00	Mid-day break
14.00	15.15	75	7.15	Tractor: Practical (advanced)
15.15	15.45	30	7.45	Quizzes
15.45	16.00	15	8.00	Revision and summary

Day Three

From	To	Time		Subject
8.00	9.00	60	1.00	Daily maintenance
9.00	10.00	60	2.00	Traffic signs
10.00	10.30	30	2.30	Rules of the road
10.30	10.45	15	2.45	Morning break
10.45	11.15	30	3.15	Regulations
11.15	13.00	105	5.00	Tractor: Hydraulic controls
13.00	14.00	60	6.00	Mid-day break
14.00	15.00	60	7.00	Daily maintenance: Final
15.00	16.00	60	8.00	Revision and course summary

On checking his age (31 years) and experience (5 months), the conclusion may be reached that:

“His knowledge and skill are low because he is a beginner (why so late in life is not important), but he appears to be keen.”

Verdict: Give him another chance.

3. Student No. 3 is a very doubtful man. His skill is not bad, but he is 40 years of age and it is doubtful whether his knowledge will ever improve. This is coupled with a negative temperament.
4. Having “read” something into the numerical results, the assessor then compares his interpretation with the remarks made by the instructors. The instructor’s remarks are based strictly on personal opinion, without reference to the marks and this is important. Where the instructor’s remarks and the assessor’s conclusions differ markedly, further investigation is indicated.

Advantages of the system

This system may not be very scientific, but it does offer some advantages:

1. The students need not be disturbed or become tense during the testing.
2. Each student is under test from the very first period to the last, and is assessed at least twenty-five times during the course.
3. The instructor is not concerned with recording class reactions; he is thus able to help the weaker students and encourage the eager ones.
4. The system involves two instructors, and they can alternate in leading and recording. Their presentations are kept at a high standard because they remain aware that a colleague is always following their words and actions.
5. The continuous assessment of each student ensures that the results are reliable. Any pretence by a student must eventually be exposed in a course lasting three days and involving at least twenty-five separate assessments.

Note—The examples given in the appendices are from an actual course.

Conclusions

A simple, flexible system of assessing students on a training course is certainly better than none at all. The system described here requires two instructors per course, which constitutes a heavy demand for skilled personnel. However, the system ensures the maintenance of a high standard of instruction. Were all aspirant tractor drivers screened by aptitude and attitude tests, and were all aspirants educated to at least a Standard 6 level, this system could well become redundant.

APPENDIX “B”
Three-day tractor operator’s course — Main course record sheet

Ser. No.	NAME	Reg. No.	Age	Licensed			4 No.	5 L/E	6	Educ.	EMPLOYER	Ser. No.	K			S			T			7 Av.						
				1	2	3							1	2	3	1	2	3	1	2	3		1	2	3			
1			25				1	E	4			1	55	50	61	55	50	57	80	73	75	65	80	73	75	76	65	
2			30				1	E	11			2	30	35	46	45	35	48	70	80	85	57	70	80	85	57	76	
3			40				1	E	1			3	20	45	37	65	45	55	55	70	57	55	61	51	51	51	51	51
4			31				1	E	5/12			4	35	42	41	30	25	35	30	70	73	70	47	70	73	70	47	47
5			32				1	E	7			5	55	55	60	50	75	65	63	80	87	85	69	80	85	84	69	69
6			21				1	E	3			6	60	67	75	50	65	60	60	85	87	80	70	80	87	80	84	70
7			21				1	E	1			7	40	45	55	35	70	65	57	85	60	75	59	60	67	75	59	59
8			32				1	E	2			8	30	50	55	30	45	55	43	65	67	70	52	65	67	70	52	52
9			49				1	E	15			9	55	60	75	60	80	80	73	80	97	90	75	80	97	90	75	75
10			45				1	E	—			10	30	47	40	25	40	50	38	60	60	65	46	60	60	65	46	46
11			43				1	E	8			11	60	55	60	35	60	70	55	65	87	75	63	65	87	75	76	63
12			24				1	E	1			12	25	45	50	45	55	45	48	55	77	80	53	55	77	80	71	53
13			19				1	L	1/12			13	50	55	60	50	70	60	60	70	83	95	66	70	83	95	66	66

NOTES: Columns 1, 2, 3: Make a cross if licensed for Car, Heavy Duty or Tractor.
 Column 4: State number of previous courses.
 Column 5: “L” for Learner, or “E” for some experience.
 Column 6: Experience in years.
 Column 7: Average for K, S and T.

APPENDIX "C"
Three-day tractor driver's courses — Day one assessment

Ser. No.	NAME	Knowledge					Skills					Temperament			
		System	Roads	Controls	Controls	Pts	% X5	Controls	Drive	Rev.	Pts	% X5	+	% X5	
1		+1	+2	+2	-0	+1	+1	+1	+1	+1	+1	55	11	16	80
2		+1	+0	+0	+0	+2	+1	+1	+1	+1	30	6	14	70	
3		+1	+0	+1	+0	+1	+1	+1	+1	+1	45	4	14	70	
4		+1	+0	+1	+0	+1	+1	+1	+1	+1	30	7	14	70	
5		+2	-0	+2	+0	+1	+1	+1	+1	+1	55	11	16	80	
6		+1	+2	+1	+1	+1	+1	+1	+1	+1	60	12	17	85	
7		+0	+2	+1	+1	+1	+1	+1	+1	+1	40	8	17	85	
8		+0	+2	+1	+1	+1	+1	+1	+1	+1	30	6	13	65	
9		+2	+2	+1	+1	+1	+1	+1	+1	+1	55	11	16	80	
10		+2	+1	+2	+1	+1	+1	+1	+1	+1	30	6	12	60	
11		+2	+1	+2	+1	+1	+1	+1	+1	+1	25	5	13	65	
12		+0	+1	+1	+1	+1	+1	+1	+1	+1	35	7	11	55	
13		+1	+1	+2	+1	+1	+1	+1	+1	+1	50	10	14	70	

APPENDIX "D"
Three-day tractor operator's course — Day two assessment

Ser. No.	Rev.*	Knowledge				Skills				Temperament				
		Hydraulics	Road rules	Wheel and weights	Maintenance	Pts	X5/2	Hydraulics	Driving	Reversing	Pts	% X5	+	X10/3
1						23	57				10	50	22	73
2						17	42				7	35	24	80
3	+0	+0	+0	+0	+0	16	40	-0	+1	+1	9	45	17	57
4	+1	-0	-1	+1	+2	17	42	-2	+1	-1	5	25	22	73
5						22	55				15	75	26	87
6						27	67				13	65	26	87
7						18	45				14	70	18	60
8						20	50				9	45	20	67
9						24	60				16	80	29	97
10						19	47				8	40	18	60
11						22	55				12	60	26	87
12						18	45				11	55	23	77
13						22	55				14	70	25	83

* Rev. --- Revision of day one.

APPENDIX "E"
Three-day tractor operator's course — Day three assessment

Ser. No.	NAME	Knowledge				Skills				Temperament					
		Revision*	Traffic†	Controls	Pts	% X5	Controls	Driving	Reversing	Pts	% X5	+	% X5		
1		-0	+2	+0	14	70	-1	+2	-1	+1	+1	13	65	15	75
2		+2	+2	+1	13	65	+2	+1	-1	-1	-1	13	65	17	85
3		+2	+2	+1	10	50	+2	+0				11	55	11	55
4		+2	+2	+1	9	45	+2	+0				7	35	14	70
5		+2	+2	+1	14	70	+2	+0				13	65	17	85
6		+2	+2	+1	15	75	+2	+0				13	65	16	80
7		+2	+2	+1	11	55	+2	+0				13	65	15	75
8		+2	+2	+1	11	55	+2	+0				11	55	14	70
9		+2	+2	+1	15	75	+2	+0				16	80	18	90
10		+2	+2	+1	8	40	+2	+0				10	50	13	65
11		+2	+2	+1	12	60	+2	+0				14	70	15	75
12		+2	+2	+1	10	50	+2	+0				9	45	16	80
13		+2	+2	+1	12	60	+2	+0				12	60	19	95

* Revision — Revision of days one and two.

† Traffic — General division.

APPENDIX "F"

Three-day tractor operator's course report

We thank you for sending your tractor operator on this course. We have given him as much training as three days allow and his further usefulness to you will depend on how much knowledge he retains, his willingness to improve himself and your on-the-job follow-up training.

From an assessment done by us we report as follows:

Course started..... Venue

Operator..... Reg. No.....

Age..... Licensed..... No. of previous courses.....

Learner/Experienced Experience.....yrs. Education.....

Operator's assessment

	Operator's		Class		
	%	Grade	Highest	Lowest	Average
Knowledge					
Skills					
Temperament					
Averages	%				

Grading	Knowledge	Skills	Temperament
G (Good)	+ 60%	+ 65%	+ 80%
A (Average)	+ 45%	+ 50%	+ 65%
F (Failure)	- 44%	- 49%	- 64%

Remarks

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(Appendix G — see page 93)

APPENDIX G Comparisons of average marks and scores for attitude, skills and knowledge.

