This document is copyrighted by the American Psychological Association or one of its allied publishers. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

5	Ϋ́.	Т.	Ň	X	Υŋ.	łł	

that underlies the ability to recognize correct judgment. To lack the former is to be deficient in the latter.

Imperfect Self-Assessments

their course performance (Moreland, Miller, & Laucka, 1981). Unskilled readers are less able to assess their text comprehension than are more skilled readers (Maki, Jonas, & Kallod, 1994). Students doing poorly on tests less accurately predict which ques-

் <u>ம 🚈 👝</u>		1 Ter
*		
<u> </u>		
1	/- x	
STS Da		
bro		
is 1		
Iq. pa		
th at		
d u		
D.E.		
Sn Sn		
-T is		
in second		
its		
E e		
5 2		
ot ot		
n n		
0 8		
e :-		
0 0		
a		
T .		
SO SO		
ss n		
č d		
· 50 K		
ol b		
O II		
ie ih		
th yc		
S. F		
Sc ar		
n c		
.E 13		
ne D		
<u> </u>		
	۲	
epe	k	
y the		
r the pe		
ed by the for the pe		
y for the pe		
ghted by the ely for the pe		
righted by the blely for the pe		
syrighted by the person of the	We focus on the metacognitive skills of the incompetent to 197	70. Sinkavich 1995) Drivers involved in accidents or flunking
opyrighted by the period solely for the period	We focus on the metacoonitive skills of the incommetent to 197	20. Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
copyrighted by the period solely for the period	We focus on the metacoanitive skills of the incommetent to 197	29. Sinkavich 1995) Drivers involved in accidents of flunking
is copyrighted by the pended solely for the pe	We focus on the metacoonitive skills of the incompetent to 197	79: Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
it is copyrighted by the tended solely for the pe	We focus on the metacoonitive skills of the incommetent to 197	29. Sinkavich 1995) Drivers involved in accidents of flunking
ent is copyrighted by the ntended solely for the pe	We focus on the metacoanitive skills of the incomnetent to 197	79. Sinkavich 1995) Drivers involved in accidents or flunking
ment 15 Copyrighted by the	We focus on the metacoonitive skills of the incomnetent to 197	79: Sinkavich 1995) Drivers involved in <u>ac</u> ridents or flunking
ument is copyrighted by the is intended solely for the ac	We focus on the metacoonitive skills of the incompetent to 197	70. Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
cument is copyrighted by the e is intended solely for the pe	We focus on the metacoonitive skills of the incompetent to 197	79: Sinkavich 1995) Drivers involved in <u>ac</u> ojdents or flunking
d cument 15 copyrighted by the	We focus on the metacoonitive skills of the incompetent to 197	70• Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
s document is copyrighted by the rtille is intended solely for the pe	We focus on the metacoonitive skills of the incompetent to 197	79: Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
his dicument is copyrighted by the artille is intended solely for the pe	We focus on the metacoonitive skills of the incommetent to 197	79: Sinkavich 1995) Drivers involved in <u>accid</u> ents or flunking
This accument is copyrighted by the us article is intended solely for the pe	We focus on the metacoonitive skills of the incomnetent to 197	79. Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
This dicument is copyrighted by the This article is intended solely for the pe	We focus on the metacoanitive skills of the incommetent to 197	70• Sinkavich 1995) Drivers involved in <u>accid</u> ents of flunking
This artile is intended solely for the period of the perio	We focus on the metacoonitive skills of the incompetent to 197	70• Sinkavich 1995) Drivers involved in <u>accidents or flunkin</u> o
This dicument in copyrighted by the This article is intended solely for the pe	We focus on the metacoonitive skills of the incommetent to 197	79: Sinkavich 1995) Drivers involved in <u>Re</u> cidents or flunking
This artine is intended solely for the period	We focus on the metacoonitive skills of the incompetent to 197	70• Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
This document is copyrighted by the Materican Psychological Association or one of its allied publishers. I we the article indicate the indicate here indicate the indicate here and is not to be disseminated broatly. In this article is intended solely for the period and use of the indicate here and is not to be disseminated broatly.	We focus on the metacoonitive skills of the incomnetent to 197	79: Sinkavich 1995) Drivers involved in <u>Re</u> cidents or flunking
This dictiment is copyrighted by the This artine is intended solely for the pe	We focus on the metacoonitive skills of the incompetent to 197	79. Sinkavich 1995) Drivers involved in <u>accid</u> ents or flunking
This arcument is copyrighted by the This article is intended solely for the pe	We focus on the metacoonitive skills of the incomnetent to 197	79: Sinkavich 1995) Drivers involved in <u>Re</u> cidents or flunking
This dictiment is copyrighted by the This artille is intended solely for the pe	We focus on the metacoonitive skills of the incommetent to 197	70 [.] Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
This article is intended solely for the period	We focus on the metacoonitive skills of the incompetent to 197	70: Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
This dicument is copyrighted by the This artille is intended solely for the pe	We focus on the metacoonitive skills of the incommetent to 197	70 [.] Sinkavich 1995) Drivers involved in <u>accidents or flunking</u>
This article is intended solely for the period	We focus on the metacoonitive skills of the incompetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	70• Sinkavich 1995) Drivers involved in accidents or flunking
This artice is intended solely for the period	We focus on the metacoonitive skills of the incompetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	
	We focus on the metacoonitive skills of the incompetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	
	We focus on the metacoonitive skills of the incompetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	
	We focus on the metacoonitive skills of the incommetent to 197	

explain, in part, the fact that people seem to be so imperfect in appraising themselves and their abilities.¹ Perhaps the best illustration of this tendency is the "above-average effect," or the tendency of the average person to believe he or she is above average, a result that defies the logic of descriptive statistics (Alicke, 1985; Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Brown & Gallagher, 1992; Cross, 1977; Dunning et al. 1999; Klor Medding, & Saral, 1996; Weinstein, 1999; Weinstein, 1999; Weinstein, 1999; Weinstein, 1999; Market, Medding, & Saral, 1996; Weinstein, 1999; Market, Medding, & Saral, 1996; Weinstein, 1999; Weinstein, 1999; Market, 1990; Weinstein, 1999; Market, 1990; Mark

a driving exam predict their performance on a reaction test less accurately than do more accomplished and experienced drivers (Kunkel, 1971). However, none of these studies has examined whether deficient metacognitive skills underlie these miscalibrations, nor have they tied these miscalibrations to the above-average effect. and test performance. In all studies, we predicted that participants in general would overestimate their ability and performance relative to objective criteria. But more to the point, we predicted that

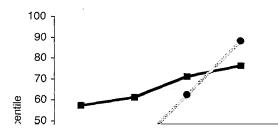
Ì

Met	hod

Participants. Participants were 65 Cornell University undergraduates from a variety of courses in psychology who earned extra credit for their

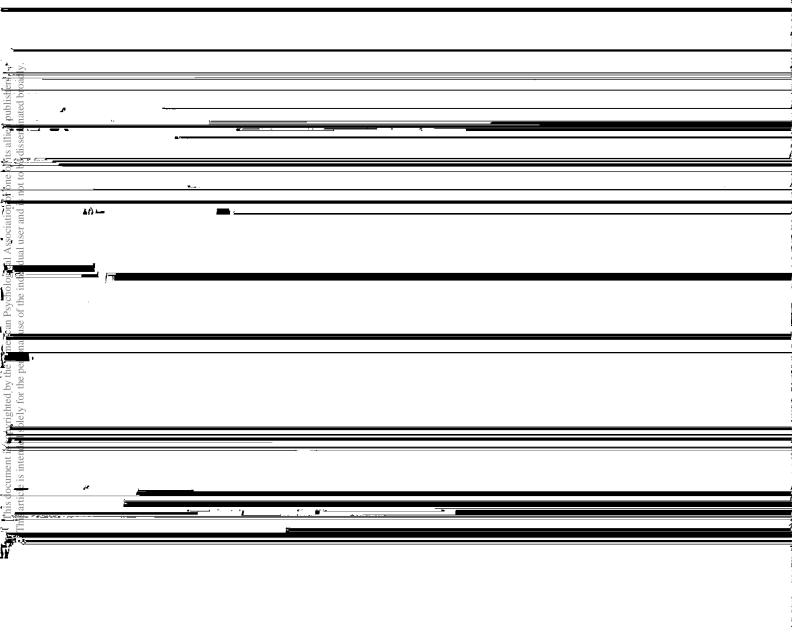
	those who proved to be h	ncompetent (i.e., those who scored in	the		
, . 				-	
¥					
	a ·	,t. <u>ga</u>			
<u>, </u>	<u></u>				
oadly					
d bro					
nate					
semi					
dis:	1	3 · · · · · · ·			
to be di					
ot t					
d is					
This article is intended solely for the personal use the the individual user and is not to be disseminated broadly.					
idu					
ycno the i					
· · · · · · · · · · · · · · · · · · ·			•		
ul us					
Sona	\$ L				
e per					
in he					
ly fo	ŝ				
sole					
ided					
nter					
cuu e is					
rticl	· <u> </u>				
hisa					
-E					
4					
	4 x				
—					
	• <				
		the test of the second second			
				٨, .	
	X	<u>ــــــــــــــــــــــــــــــــــــ</u>			
. ł					
_					
-					

KRUGER AND DUNNING



focusing on intellectual rather than social abilities. We chose logical reasoning, a skill central to the academic careers of the participants we tested and a skill that is called on frequently. We wondered if those who do poorly relative to their peers on a logical reasoning test would be unaware of their poor performance.

Examining logical reasoning also enabled us to compare perceived and actual ability in a domain less ambiguous than the one we examined in the previous study. It could reasonably be argued



UNSKILLED AND UNAWARE

d Tra		السال الذي 100 م. معادلاً ط <u>مية ما محمد من المعامية المعمد من طبحاً المعمومين أورم</u>	
<u>,</u> ,			
ł			1
		,	1
1. <u></u>			
			1
	1.		
hers. proadl			
ated b			
ed p min:			
is all lis			
to be			
or or not			
tion m1			
u er			
A qual			
ind 7			
sycho f the			
P I			:
use			
mericar onal use			4
the Americar personal use	-	<u>[</u> [4] ====================================	
d by the Americar of the personal use	-	744	
ighted by the Americar el totel personal use	-	7/14	,
copyrighted by the American ed soleited the personal use	-	<u> 264</u>	
is copyrighted by the American thended sole in the personal use	-	7/41	
currient is copyrighted by the American e is intended sole in the personal use	-		
is docurted is copyrighted by the American unlicle is intended sole in the personal use	-		
This document is copyrighted by the American If is article is intended sole to the personal use	-		· ·
T is article is intended soled by the American Psychological Association for one of its affect bublishers. This article is intended soled to the personal use of the individual u grand is not to be fits mainated broadly.	-		· ····································
This accurate is copyrighted by the American This article is intended sole in the personal use			
()	-		
()			
€3, € 			

1,6 -

1125

1126

KRUGER AND DUNNING

<u>₩5, , , , , , , , , , , , , , , , , </u>			
<u> </u>			
	4	i	
<u>.</u>			

answered correctly, M = 15.2 (perceived) versus 13.3 (actual), t(83) = 6.63, p < .0001. Although participants' perceptions of their general grammar ability were uncorrelated with their actual

we invited the bottom- and top-quartile performers from this study back to the laboratory for a follow-up. There, we gave each group the tests of five of their neers to "orade" and asked them to assess

Table 1 Self-Ratings (Percentile Scales) of Ability and Performance on Test Before and After Grading Task for Bottom- and Top-Quartile Participants (Study 3, Phase 2)

			Participa	nt quartile		
	Bottom		3ottom		Тор	
Rating	Percentile ability	Percentile test score	Raw test score	Percentile ability	Percentile test score	Raw test score
Before	66.8	60.5	12.9	71.6	69.5	16.9
After	63.2	65.4	13.7	77.2	79.7	16.6
Difference	-3.5	4.9	0.8	5.6*	10.2**	-0.3
Actual	10.1	10.1	9.2	88.7	88.7	16.4

<u>.</u>

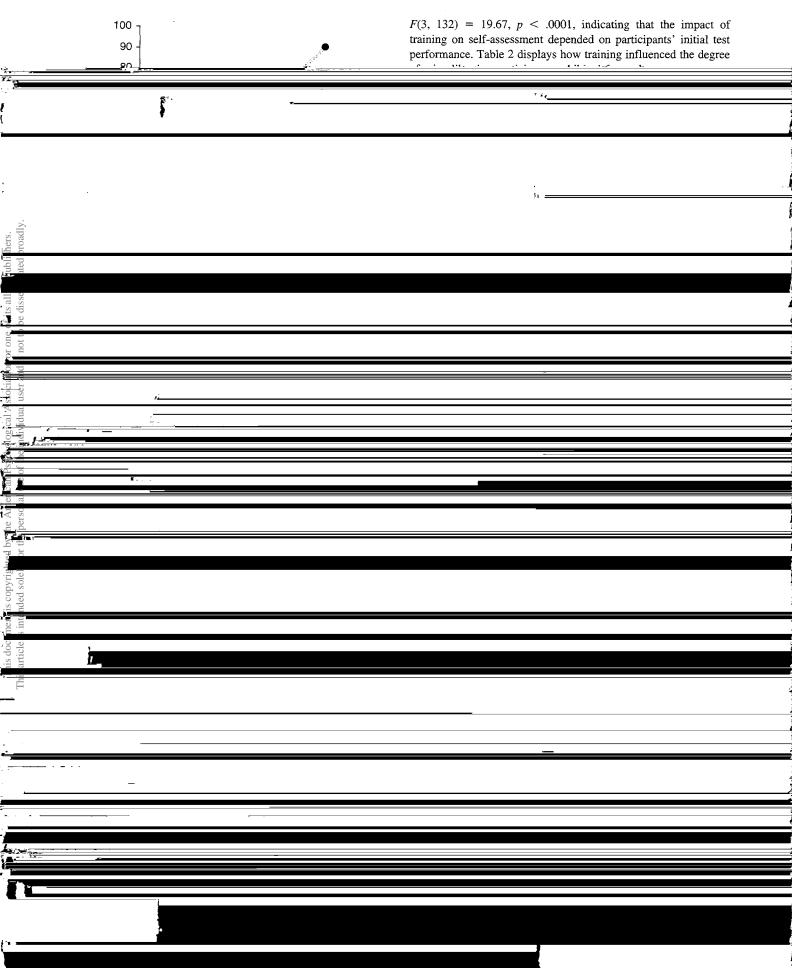
ers. Dadly.	After Difference	63.2 -3.5	65.4 4.9	13.7 0.8	77.2 5.6*	79.7 10.2**	16.6 - 0.3	
blishe ed bre	Actual	10.1	10.1	9.2	88.7	88.7	16.4	
de trie of its allied publishers. Minutito be disseminated broadly.	$* p \le .05. **$	<i>p</i> < .01.				-		
of its a be dist	deviation) o fa	at all and mainten and a	alma an XV- due and a			11 1 0 1	· • •	
	3						• • • •	
noi								
er a								
ands dual i								
ologic								
the second se								
Deter in the yrighted of the Anna Can Prychological Association le in ntend to olely for the person it use of the individual ther and								
Son L								
e per								
ed y for h								
right dely								
						ь п		
nt if ntenc								
ocu le i								
Thi This a								
Thi								
.	i .							
}						<u>p</u>		
• • • •								

The best acid test of our proposition, however, is to manipulate competence and see if this improves metacognitive skills and thus the accuracy of self-appraisals (Prediction 4). This would not only enable us to speak directly to causality, but would help rule out the regression effect alternative account discussed earlier. If the inanswered correctly and compared themselves with their peers in terms of their general logical reasoning ability and their test performance.

Results and Discussion

Pretraining self-assessments. Prior to training, participants

<u> </u>			
ateo			
Illi se			
fits e d	<u> </u>		
to 1	<u> </u>		
o nu			
atic		<u></u>	
Sei			
l As ual			
vidi			
golo			
vcho the line			
of			
nei ma			
erso			
This document scropyr fried by the Arnelies is Psychological Association of one of its Illied publication of the individual user meris fut to be di seminated by the second screet meris from the diseminated by the second screet meris from the diseminated by the second screet meris from the second screet me			
nte			
sol			
don			
it is			
s men			
ocu le i			
is d	• • • • • • • • • • • • • • • • • • •	 	
. <u> </u>			
·			
Y.			
<u> </u>	r		
¥			
·· · · · · · · · · · · · · · · · · · ·			
)			





KRUGER AND DUNNING

	مام المدينة مرام الأرض مريد المالية المرجع والم	ta allettas pola com a atoria a		

<u>.</u> 106:		<u> </u>		
	<u>2</u> 4.		11	
	••		-	
y.				
rs. adl				
brc				
ted				
d p iina				
sem				
lis				
t ti				
not not				
on o d is				
atio				
soci				
This document in convrighted by the American Parthologica Association or one of Allied publishers. This article is intended solely for the personal use of the individ all user and is not to disseminated brhadly.				
id				
div				
hol e in				
1				
n P e o				
rica 1 us				
me				
e A				
u bu				
d by ir th				
hte y f(
/rig olel				
ic p				
i ude				
tnt nte	•		-	
is	¥			
doc				
arti				
E iq				
' * ;	· ·· ·· · · · · · · ·	· · · · · _	· · ·	
_			· · · ·	
1.00.000.000	_ _			
				<u>^</u>
* . v	τ- ^π λγ- [−] β		•	
€ -	· · ·			
1				
1.				
.				

UNSKILLED AND UNAWARE

	it comes to assessments of one's own ability.	appears that extremely competent individuals suffer a burden as
	What are a set of the	
-		Ţ
		1 m
	to a lack of metacognitive skills among less skilled participants. Bottom-quartile participants were less successful than were top-	their proficiency is not necessarily shared by their peers.
	to a lack of metacognitive skills among less skilled participants. Bottom-quartile participants were less successful than were top- quartile participants in the metacognitive tasks of discerning what	

ì

ı

r/ 54

1

ι.

1131

<u></u>

n

2

<u>}</u>		
1		
•		
Ľ —		
\		
-		
1		
- -		
•, —	-	
s. adly.	Limitations of the Present Analysis	their ability. Instead, if people show any bias at all, it is to rate
allied publishers. isseminated broadly.		themselves as worse than their peers (Kruger, 1999).
pub	We do not mean to imply that people are always unaware of their incompetence. We doubt whether many of our readers would	
lied	dare take on Michael Jordan in a game of one-on-one, challenge	Relation to Work on Overconfidence
2.10		
<u>France</u>		
is n		
and		
ocia ser a		
Ass al u		
ical vidu		
ndiv		
nerical Psychological Association or ad- mal use of the individual user and is 12	L 1 1 2 2	
of		
ical use		
nen)
		4 <u></u>
by th		
for f		
nigh T		
iyqc Hall		
is condec		
ent intei		
cum is		
ticle		
This document is copyrighted by the initial article is intended with for the initial article is intended with the initial		
Ч		
. (
<u>1</u>		
<u>₹</u>	(
-		
•		
(
1		
-		

UNSKILLED AND UNAWARE

denburg, D. S. (1995). Personal contact, individuation, and the better-A contract of the formed of Providence of Contral Barrely Lance 60

ĥ

ίΞ

Felson, R. B. (1981). Ambiguity and bias in the self-concept. Social

-		
	,	
_	804-825	Festinger I. (1954) A theory of social comparison processes Human
	Allen, W. (1975). Without feathers. New York, NY: Random House.	Relations, 7, 117-140.
]	Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research. <i>Journal of Personality and</i>	Frankin, A. (1992). <i>Deep Thoughts by Jack Handy</i> . New York: Berkley Publishing Group.
,	Social Psychology, 51, 1173–1182.	Fuocco, M. A. (1996, March 21). Trial and error: They had larceny in their hearts, but little in their heads. <i>Pittsburgh Post-Gazette</i> , p. D1.
I	Bem, D. J., & Lord, C. G. (1979). Template matching: A proposal for probing the ecological validity of experimental settings in social psy-	Gigerenzer, G. (1991). How to make cognitive illusions disappear: Beyond
l	chology. Journal of Personality and Social Psychology, 37, 833–846. Blumberg, H. H. (1972). Communication of interpersonal evaluations.	"heuristics and biases." European Review of Social Psychology, 2, 83–115.
	Journal of Personality and Social Psychology, 23, 157–162.	Gigerenzer, G., Hoffrage, U., & Kleinbölting, H. (1991). Probabilistic

1134

KRUGER AND DUNNING

Sanitioso, R., Kunda, Z., & Fong, G. T. (1990). Motivated recruitment of

Tesser, A., & Rosen, S. (1975). The reluctance to transmit bad news. In L.

·/				
<u>r</u>				
8				
s. adly.				
isher bro				
publ				
llied semii				
it c				
of be				
or c ; no				
se				
l Ass ual u				
Bica				
chold te ind				m
is document is copyrighted by the American Psychological Association for a for it. Illed publishers. Indicle is intended solely for the personal use of the individual use and is no to be a seminated broadly.				
ican				
sonal	·			
the A				
d by ir the				
ghteo				
pyri I sole				
is c ^{ic} nded				
nent inte	,. •			
locur cle is	ogy, 59, 229–241.		193-232). New York: Academic Press.	
santi		· · · · ·		
This				
1				
č.				
, * <u>-</u>	ه			
				.