PSYCHOLOGY APPLIED TO WORK
An Introduction to Industrial and Organizational Psychology

THIRD EDITION



PSYCHOLOGY APPLIED TO WORK

An Introduction to Industrial and Organizational Psychology

Paul M. Muchinsky lowa State University

Brooks/Cole Publishing Company

A Division of Wadsworth, Inc.

© 1990 by Wadsworth, Inc., Belmont, California 94002. © 1987, 1983 by The Dorsey Press. All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transcribed, in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the prior written permission of the publisher, Brooks/ Cole Publishing Company, Pacific Grove, California 93950, a division of Wadsworth, Inc.

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Library of Congress Cataloging in Publication Data

Muchinsky, Paul M.

Psychology applied to work: an introduction to industrial and organizational psychology / Paul M. Muchinsky. —3rd ed.

p. cm.

Includes bibliographical references and index.

ISBN 0-534-13032-1

1. Psychology, Industrial. 2. Organizational behavior.

I. Title.

HF5548.8.M756 1990

158.7—dc20

89-22343

CIP

Sponsoring Editor: Philip L. Curson Editorial Assistant: Heather L. Riedl Production Editor: Timothy A. Phillips Manuscript Editor: Betty G. Seaver Permissions Editor: Carline Haga

Interior and Cover Design: Michael Rogondino

Design Coordinator: Vernon T. Boes Cover Photo: Dawson Jones Art Coordinator: Lisa Torri Interior Illustration: Pat Rogondino

Photo Researcher: Doris F. Hill

Typesetting: Interactive Composition Corporation

Cover Printing: The Lehigh Press

Printing and Binding: Arcata Graphics/Fairfield

To Carly Thank you

Preface

There is an old saying, "If something is not broken, don't fix it." I recently heard an updated version of the saying: "If something is not broken, improve it." This third edition of my book represents an attempt to improve upon something that has been favorably received within the field of industrial/organizational psychology.

I strove to maintain three major aspects of the book that have contributed to its popularity. First, I like to write in an engaging, personal style. I feel it serves to bring the reader closer to material that can sometimes appear to be rather cold and sterile. One of the highest compliments I get from people is to be told my writing makes the material "interesting and enjoyable." I trust you will find this edition to be written in the same readable style as its predecessors.

Second, by its very nature industrial/organizational psychology is concerned with the generation of knowledge, as well as its application to solve real-world problems. That is, the field is directed toward both science and practice. When writing a book, one can easily stray too far in one direction or the other. I have tried to strike a balance between the two. I would be performing a disservice to the scientific aspect of our profession if I exclusively wrote a lengthy series of applications without explaining their conceptual bases. Likewise, it is difficult to imagine how abstract theories can ever be applied in practice if there is no attempt to provide illustration of their use. On many occasions I've had incredulous students ask me if "all this stuff can really be used in everyday life?" My answer is a resounding "Yes!" I have tried to capture both the science and practice of industrial/organizational psychology in writing this book.

Third, I have retained and further developed a number of instructional devices that I feel enhance the value of the book: case studies, field notes, photographs, cartoons, and summary tables. I believe they all serve to embellish the text material by increasing the avenues of learning.

Finally, I have added some new material—organizational theory, alcoholism and drug abuse in the workplace, genetic screening, computer-adaptive testing, organizational culture, emerging views of leadership, ergonomics, and much more—and deleted some dated material from the earlier edition. I hope you will find the material to be current and comprehensive. All in all, I believe this edition is a worthy successor to its predecessors.

I would like to thank a number of colleagues who served as reviewers for this edition. They were Janet Barnes-Farrell, University of Connecticut; John Binning,

Illinois State University at Normal; Douglas Cellar, DePaul University, Chicago, Illinois; Dean Frost, Portland State University; Larry Gregory, New Mexico State University; Shepard Insel, San Francisco State University; Karl Kuhnert, University of Georgia; Lynn Offerman, George Washington University, Washington, D.C.; David Weckler, San Jose State University; Ladd Wheeler, University of Rochester; and a special thanks to K.H.E. Kroemer, Virginia Polytechnic Institute. Their comments and suggestions were most gratefully received. I would also like to thank two of my graduate students, Laura Reichel and Judy Collins, for their invaluable assistance. My loyal secretary, Martha Behrens, once again typed the book in its entirety. Marty, the book, and I are all aging gracefully, but she more than I. Finally, to my children, Andrea and Brian, who represent two of the really good things in life, you kept asking me when I'd be done with the book. Well, here it is.

Paul M. Muchinsky

Contents

SECTION ONE Introduction

Psychology 3 Industrial/Organizational Psychology 4 Fields of I/O Psychology 7 Licensing and Certification of Psychologists 10 The History of I/O Psychology 11 The Early Years (1900–1916) 11 World War I (1917–1918) 15 Between the Wars (1919–1940) 16 World War II (1941–1945) 19 Toward Specialization (1946–1963) 20 Governmental Intervention (1964–Present) 21 Scope of the Book 22 Major Chapter Objectives in Review 24

2 Research Methods in I/O Psychology 25

```
The Empirical Research Process 26
Statement of the Problem 27
Design of the Research Study 28
Laboratory Experiment 29
Field Experiment 30
Field Study 32
Sample Survey 33
Measurement of Variables 36
Levels of Measurement 38
```

Analysis of Data 39
Distributions and Their Shape 40
Measures of Central Tendency 41
Measures of Variability 44
The Concept of Correlation 45
Conclusions from Research 50
Ethical Problems in Research 52
Research in Industry 54
Future Research in I/O Psychology 56
Major Chapter Objectives in Review 57
CASE STUDY—How Should I Study This? 57

SECTION TWO Personnel Psychology

3 Criteria 63

Disagreement Among People in Making Evaluations 63 Conceptual Versus Actual Criteria 64 Criterion Deficiency, Relevance, and Contamination 66 Criterion Development 68 Job Analysis 70 Methods of Job Analysis 70 lob-Oriented and Worker-Oriented Procedures 73 Evaluating Job-Analysis Methods 74 *Job Evaluation* 78 Methods of lob Evaluation 79 Research on Job Evaluation 80 Standards for Criteria 82 Types of Criteria 83 Hard Criteria 84 Soft Criteria 87 Relationship Among Job-Performance Criteria 89 Composite Versus Multiple Criteria Composite Criterion 90 Multiple Criteria 91 Resolution of the Controversy 91 Concluding Comments

Major Chapter Objectives in Review 92 CASE STUDY—Who Gets the Scholarship? 93

4 Predictors 95

Assessing the Quality of Predictors 96

Reliability 96

Validity 97

Criterion Reliability and Validity 101

Psychological Assessment and the Law 102

Psychological Tests and Inventories 105

Types of Tests 105

Ethical Standards in Testing 107

Sources of Information About Testing 108

Test Content 109

Intelligence Tests 109

Mechanical Aptitude Tests 111

Ability Tests 113

Personality and Interest Inventories 114

Multiple-Aptitude Test Batteries 116

Computerized Adaptive Testing 116

Testing in Retrospect 117

Interviews 117

Format of the Selection Interview 118

Evaluation of the Interview 119

Factors Influencing Interview Outcomes 121

Work Samples and Situational Exercises 122

Work Samples 122

Situational Exercises 124

Biographical Information 124

Peer Assessment 128

Letters of Recommendation 128

New and Controversial Methods 130

Overview and Evaluation of Predictors 133

Summary 136

Major Chapter Objectives in Review 137

CASE STUDY—How Do We Hire Police Officers? 139

5 Personnel Decisions 142

Recruitment 143

Selection 147

Regression Analysis 148

Multiple Predictors 150

Multiple Regression Analysis 153

Cross-Validation 154

Development of Test Batteries 156

Assessing the Utility of a Predictor 157

Selection Decisions 163

Expectancy Charts 166

Classic Selection Model 167

Concurrent Versus Predictive Validity 169

Selection Strategies 170

Multiple Regression 171

Multiple Cutoff 172

Multiple Hurdle 173

Profile Matching 175

Validity Generalization 178

Test Utility and Organizational Efficiency 180

Placement and Classification 181

Major Chapter Objectives in Review 183

CASE STUDY—Whom Should I Hire? 184

6 Personnel Training 187

Training and Learning 188

Training Defined 189

Relationship to Organizational and Individual Goals 189

Stating Training Objectives in Behavioral Terms 191

Deterrents to Effective Training 192

The Design of Personnel Training 193

Assessing Training Needs 194

Organization Analysis 194

Operations Analysis 197

Person Analysis 199

Methods and Techniques of Training 201

On-Site Training Methods 202

Off-Site Training Methods 204
Overview of Training Methods 214
Evaluation of Training Programs 216
Criteria 217
Research Designs 221
Equal Employment Opportunity and Training 224
Summary 225
Major Chapter Objectives in Review 225
CASE STUDY—What Do I Do Now? 225

7 Performance Appraisal 227

Implementing a Performance Appraisal Program 228 Using the Results of Performance Appraisal 229 Performance Appraisal and the Law 232 Sources of Performance-Appraisal Information 234 Objective Production Data 234 Personnel Data 235 Judgmental Data 236 Rater Training 250 Evaluation of Poor Performance 251 Self and Peer Appraisals 253 Self-Assessments 253 Peer Assessments 254 Assessment Centers 255 Feedback of Appraisal Information to Employees 261 Concluding Comments 263 Major Chapter Objectives in Review 265 CASE STUDY—Who Shall Survive? 265

SECTION THREE Organizational Psychology

8 Organizations and Their Influence on Behavior 271

Organizational Theory 271
Three Theories of Organization 272
Classical Theory 272
Neo-Classical Theory 275

Pay 325

Modern Organization Theory 276 Components of Social Systems 278 Roles 278 Norms 280 Power 282 Culture 283 Summary of Social System Components 286 Person-Environment (P-E) Congruence 286 Individual Responses to Person-Environment Interactions 288 Dysfunctional P-E Responses 288 Functional P-E Responses 295 Overview of Individual Responses to Person-Environment Interactions 299 Major Chapter Objectives in Review 300 CASE STUDY—Should Sex Make a Difference? 300 **Job Satisfaction** 302 The Concept of Job Satisfaction 303 Theories of lob Satisfaction 306 Intrapersonal-Comparison Processes 306 Interpersonal-Comparison Processes 307 Opponent-Process Theory 308 Two-Factor Theory 309 Review of the Four Satisfaction Theories 311 Measurement of lob Satisfaction 313 lob Descriptive Index 313 Minnesota Satisfaction Questionnaire 315 Faces Scale 317 Relationship Between Job Satisfaction and Personal Variables 317 Age 318 Race 319 Sex 320 Review of Personal Correlates of Job Satisfaction 321 Relationship Between Job Satisfaction and Employment Conditions Status 323 Unions 324

Employee-Owned Companies 326

Review of Employment-Condition Correlates of Job Satisfaction 327

Relationships Between Job Satisfaction and Job Behavior 327

Absenteeism 328

Turnover 330

Performance 331

Review of Job Satisfaction–Job Behavior Relationships 333

Relationship Between Job Satisfaction and Life Satisfaction 334

Review of Job Satisfaction–Life Satisfaction Relationship 337

Concluding Comments 337

Major Chapter Objectives in Review 338

CASE STUDY—Do You Like Your Job? 339

10 Work Motivation 341

Ability, Performance, Situational Constraints, and Motivation 341 Work Motivation 342

Two Perspectives of Motivation 342

Motivation Theories 345

Need-Hierarchy Theory 345

ERG Theory 349

Equity Theory 351

Expectancy Theory 356

Reinforcement Theory 363

Goal-Setting Theory 367

Intrinsic Motivation 370

Overview and Synthesis of Work Motivation Theories 373

Major Chapter Objectives in Review 376

CASE STUDY—What to Do with Harry? 376

11 Leadership 379

Major Substantive Topics of Interest in Leadership Research 380

Positional Power 380

The Leader 381

The Led 381

Influence Process 382

The Situation 382

Leader Emergence Versus Leader Effectiveness 383 Overview 383 Established Theories of Leadership 384 Trait Theory 385 Behavior Theory 386 Fiedler's Contingency Theory 390 Path-Goal Theory 395 Mutual-Influence Theory 399 Vroom-Yetton Contingency Theory 400 New Theories of Leadership 405 Cognitive-Resource Utilization Theory 405 Implicit Leadership Theory 406 Charismatic Leadership Theory 406 Substitutes for Leadership 407 Women in Leadership Roles 409 Overview of Leadership Research 412 Major Chapter Objectives in Review 413 CASE STUDY—What Type of Leader Do I Want? 413

12 Organizational Communication 416

Definition of Communication 417 Purposes of Communication 417 A Model of Communication 418 Communication in Work Behavior 420 Selection 420 lob Performance 421 Performance Appraisal 422 Training 423 Organizational Climate 423 Nonverbal Communication 424 Techniques of Communicating in Organizations 426 Downward Communication 426 Upward Communication 428 Methods of Studying Organizational Communication 430 Activity Sampling 430 Sociogram 431

Ecco Analysis 431 Flesch Index 432 The Effects of Organizational Structure on Communication 433 Size 433 Centralized/Decentralized Shape 434 Degree of Uncertainty 435 Communication Structure Variables 435 Communication Networks 435 Communication Roles 437 Communication Modalities 438 Communication Process Variables 439 Accuracy 439 Openness 440 Distortion 440 Overload 441 The Outcomes of Communication 442 Performance 442 Satisfaction 443 Summary 444 Major Chapter Objectives in Review 445 CASE STUDY—What Do You Want to Know? 445

SECTION FOUR The Work Environment

13 Job Design and Organization Development 451

To Alter the Worker or the Workplace? 451
Job Design 452
Historical Overview 452
Job Enlargement and Job Enrichment 453
Task Attributes 454
Job Characteristics Model 455
Measurement of Job-Design Variables 459
How to Redesign Jobs 461
Effectiveness of Job-Redesign Programs 464
Organizational Implications of Job Redesign 465

Organization Development 467 What Is OD? 467 The Need for OD 468 Three Basic Concepts 469 Generalized Models of Change 471 Typology of OD Interventions 475 Major OD Interventions 476 An Illustrative Example 479 Research on OD 481 Values and Ethics in OD 484 Summary 485 Major Chapter Objectives in Review 485 CASE STUDY—How Do I Create Teamwork? 485 Union/Management Relations 488 What Is a Union? 490 Unions as Organizations 491 The Formation of a Union 492 The Labor Contract 493 Collective Bargaining and Impasse Resolution 496 Responses to Impasse 499 Disputes over Contract Interpretation 502 Influence of Unions on Nonunionized Companies 506 Behavioral Research on Union/Management Relations 506 Employee Support for Collective Bargaining 507 Union Influence 508 Dispute Settlement 511 Commitment to the Union 511 Unions and the Content of I/O Psychology 512 Personnel Selection 512 Personnel Training 513 Performance Appraisal 514 lob Satisfaction 515 Motivation 515 Leadership 516

Organizational Communication 516

Summary 517

Major Chapter Objectives in Review 517

CASE STUDY—Should We Let in a Labor Union? 517

15 Work Conditions 520

Physical Stressors in the Workplace 520

Noise 521

Heat 524

Cold 526

Multiple Stressors 527

Fatigue 528

Ergonomic Approaches to Work Design 529

Anthropometrics 530

Biomechanics 533

Physiological 534

Overview 536

Safety and Accidents 536

Safety Legislation 537

Psychological Approaches to Accident Reduction 538

Personnel-Selection Approach 538

Engineering-Psychology Approach 540

Personnel-Training Approach 541

Overview 543

Work Schedules 546

Shift Work 546

Shorter Workweek 549

Flexible Working Hours 551

Alcoholism and Drug Abuse in the Workplace 553

Concluding Comments 554

Major Chapter Objectives in Review 555

CASE STUDY Will Life Ever Get Back to Normal? 556

REFERENCES 559

AUTHOR INDEX 607

SUBJECT INDEX 619