TEST VALIDITY IN JUSTICE AND SAFETY TRAINING CONTEXTS

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A Study of Criterion-Referenced Assessment in a Police Academy

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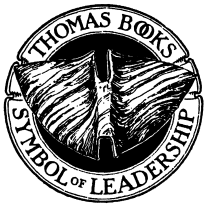

CHARLES C THOMAS • PUBLISHER, LTD.
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER, LTD.
2600 South First Street
Springfield, Illinois 62704

ISBN 0-398- 07550-6 (hard)
ISBN 0-398-07551-4 (paper)

Library of Congress Catalog Card Number: 2004058054

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Printed in the United States of America
JW-R-3

Library of Congress Cataloging-in-Publication Data

Test validity in justice and safety training contexts : a study of criterion-referenced assessment in a police academy / by Kevin I. Minor … [et al.].
p. cm.
Includes bibliographical references and index.
ISBN 0-398-07550-6 — ISBN 0-398-07551-4 (pbk.)
1. Police training—Evaluation. 2. Criminal justice personnel—Training of—Evaluation. 3. Educational tests and measurements. I. Minor, Kevin I.

HV7923.T47 2004
363.2'071'173—dc22

2004058054

In memory of my Mother, Muriel Minor (1922–2004)
Kevin I. Minor

In memory of my Father, Major Jack J. Wells (1926–1965)
James B. Wells

To my Husband Preston, our Daughters Taylor, Allison, and Hanna, my Mother Charlotte Shelton, my Grandmother Helen Wells, and my Brother and Sister-In-Law, Randy and Stephanie Shelton
Kimberly Cobb

To my Daughters, Diana and Jeannie, my Grandchildren, Sarah, Stevie, and Kaleb, and to Jim
Beverly Lawrence

To my Daughter, Teri Ann
Terry C. Cox

PREFACE

Every year in the United States and other nations, organizations in diverse areas of the justice and safety field devote considerable time, effort, and money to personnel training. Staff working in law enforcement, courts, adult corrections, juvenile justice, child and family welfare, fire safety, emergency medical care, and related agencies must develop the knowledge and skills required to effectively perform duties that can be quite complex and challenging. Regardless of the agency or the level of government at which training is provided, training officials need valid mechanisms for assessing the degree to which trainees actually acquire the knowledge and skills intended.

Whether written tests or other performance measures are used for this purpose, these assessment instruments often determine which trainees will and will not be formally credentialed to perform work. As such, their validity is no small matter of importance. Yet, there is little published research examining the validity of testing instruments used in justice and safety training contexts. The purpose of our book is to address this void and to encourage increased attention to the question of whether tools being used to assess knowledge and skills acquired from training conform to scientifically established standards of validity.

Our plan and approach in preparing this volume has been to produce a book that is academically grounded and has considerable utility for applied settings. Test validation is a complex and abstract subject, and writing about it can quickly become a rather esoteric exercise. To be sure, the theoretical and empirical intricacies that characterize the literature on tests and measurements are important. Without the meticulous efforts of scholars who have produced this literature, there would be no solid basis for application of any kind. But for application to take place, for the academic and practitioner

realms to merge, theoretical principles must become comprehensible and concrete. For this reason, our approach is more demonstrative in nature. Our aim has been to show how to perform validation of training assessment instruments by actually doing so, and by addressing the central issues that warrant consideration in the process. Our hope is that validation strategies and issues will become more concrete through illustration.

In terms of its scope, the book begins with background information that is important to our research on the validity of tests used in police training. We establish the significance of training test validation as an area of research, describe the context in which our own validation study was conducted, and report the results of a national survey designed to profile police academy testing practices in the United States. We also take up a number of important considerations involved in the construction of testing instruments and review the major principles in the literature pertaining to test validity and reliability, particularly with respect to criterion-referenced (versus norm-referenced) measurement.

After providing this background in the first three chapters, we devote the next four chapters to describing and presenting the findings of our validation study of police academy testing. These chapters indicate the various steps undertaken in preparation for the study, and they address the face, content, construct, and criterion-related (predictive) validities of the instruments we studied. The chapters also provide item analysis data and empirically address the topics of test bias and test reliability. We finish in the last chapter by drawing conclusions about the validity and reliability of the instruments we studied and by examining the implications of our research for future efforts to validate tests in justice and safety training contexts. The appendices present data to support our conclusions and also include methods and instruments developed during our research. We anticipate that certain of the appended materials will be of use to other researchers working on test validation projects in other settings.

This book is the product of a team effort, not only teamwork among the five authors, but also collaboration between the authors and several other individuals. At the risk of leaving out someone we should have mentioned, it is customary and appropriate that we acknowledge their roles, without of course, implicating them in whatever limitations or shortcomings our work might possess. First and foremost, we are grate-

ful for all the assistance and corporation we received from the Kentucky Department of Criminal Justice Training (DOCJT). Our study would not have been possible without the support and keen insights of such DOCJT staff members as Gerry Belcher, Commissioner John Bizzack, Herb Bowling, Karen Cassidy, and Bill Moseley. Nor would the study have been possible without the cooperation of all the cadets and their supervisors who expended time and effort to provide data. Persons other than DOCJT officials and trainees assisted us in the capacity of consultants at various points in the study, and we are appreciative of their help. These persons include Elizabeth Baker, Ed Brodt, Gary Cordner, Edward Dove, Jerry Dowling, Patricia Elmore, Jack Enter, Jim Frank, Richard Givan, Keith Haley, Danny Knelson, William Nixon, Rana Sampson, Mitchell Smith, Irina Soderstrom, Robert Stack, Jim Todd, and Jim Vardalis. In addition, Gary Cordner was highly instrumental in arranging for the funding necessary to carry out the research, and he also administered Eastern Kentucky University's College of Justice and Safety as dean during most of the duration of our research and writing. The Systems Design Group graciously granted us permission to reprint material appearing in Appendix G. We also so want to acknowledge the contribution of Eastern Kentucky University in providing the senior author with a sabbatical in the spring semester of 2002, during which substantial portions of this book were drafted. Finally, we are grateful to our publisher, Charles C Thomas, for guidance, patience, and professionalism.

CONTENTS

TEST VALIDITY IN JUSTICE AND SAFETY TRAINING CONTEXTS

Chapter I

INTRODUCTION AND OVERVIEW

TRAINING AND TESTING AS AN AREA OF RESEARCH

High quality training programs are essential for police officers and other professionals who work in related justice and safety fields. Without such programs, it is all but impossible to achieve the levels of competence and consistency necessary for the effective discharge of duties. Indeed, when issues of legal liability are raised, some of the most frequent concerns boil down to the adequacy of training (Worrall, 1998).[1] Inadequate training and preparation can lead to disaster in a real-life setting if a justice and safety practitioner cannot apply knowledge and skills that should have been acquired in a training setting.

An integral part of a good training program is a valid means of assessing the degree to which trainees acquire the knowledge and skills intended by those who develop and deliver the curriculum. If training curriculum information is deemed essential for performing a particular task on the job, there must be a method of determining whether a trainee has acquired those skills or knowledge. Moreover, a potential for civil litigation exists when invalid measurement systems are used to assess a trainee's mastery of the curriculum.

Given their significance, training programs have been the topic of less research than one might expect. Studies of police training have tended to concentrate on two interrelated areas. The first area is officers' attitudes toward their training and how well officers think training prepared them for police work (e.g., Brand & Peak, 1995; Ness, 1991). The second area focuses on the amount and type of training

that officers need to receive (e.g., Edwards, 1993; Marion, 1998). Although assessment has been addressed (see Coleman, 2002), the attention given to it has been scant. Specifically, research has been conducted on the validity of pre-employment selection tests used by police agencies to help determine who to hire out of a pool of applicants (see Rafilson & Sison, 1996), but virtually no published research exists on the adequacy of instruments used to assess what is learned from police training.[2] This is in stark contrast to such fields as mental health and education where test validation studies are relatively common.

In high quality training programs, there is explication of tasks or activities trainees are expected to perform on the job and clear specification of skills and knowledge they need to gain from training. These things commonly take the form of curriculum learning objectives around which instruction is geared. In turn, accomplishment of objectives is assessed through written examination items and other performance measures that correspond to objectives.

Underlying the training process are two basic assumptions that are focal points of the study reported in this book: (1) learning objectives validly represent the knowledge and skills trainees are thought to need on the job and (2) the test items used to determine who successfully completes a training program are valid measures of accomplishment of those objectives.[3] Neither of these assumptions has received much attention in the research literature on policing. Our study of police training places special emphasis on the second assumption where research is especially lacking.

Although the focus is on police training, our study has implications for assessment in a wide range of justice and safety training settings. Examples of such settings include adult corrections, juvenile justice, child and family services, fire safety, and emergency medical care.

THE CHANGING NATURE OF TRAINING

The interrelated subjects of police training and testing assume added significance as objects of research when one considers the changing nature of police training (Birzer, 1999). These changes reflect broader shifts in the orientation of the field toward community policing, and more recently, toward homeland security concerns. Among other things, the community policing movement seeks to increase citizen par-

ticipation in assisting the police to address community and social problems that seem to be related to crime. Citizen participation is also an integral feature of many homeland security initiatives.

Traditionally, police training in the U.S. was militaristic in orientation and dominated by lecture and demonstration/practice methods of instruction; the role of the learner was largely passive. More recently, some training academies have incorporated role-plays, scenarios, simulations, and other adult learning strategies that are more self-directed.

Adult learning strategies are based on the following principles: (a) students bring relevant knowledge and experience to the classroom, and instruction should build on this; (b) students learn from each other as well as from the instructor; (c) students need to discover knowledge on their own in addition to receiving some of it passively from the instructor; and (d) learning how to find information in the future—learning how to learn—is as, or more, important than memorizing current facts and concepts (cf. Post, 1992). These assumptions lead to a facilitation style of instruction. The teacher is responsible for facilitating student learning both individually and in groups.

The concepts of problem-based learning and curricular integration are central to efforts to incorporate adult learning principles in police training. According to Codish (1996), students understand and retain information and skills more completely when these are discovered in the context of realistic, problem-based situations (e.g., case studies and scenarios); this is in contrast to lectures and demonstrations that may be more disconnected from the concrete realm. The focus shifts from rote memorization of facts and techniques to acquisition of problem solving skills through active participation in the learning process. This shift is viewed as consistent with the demands of both the community policing and homeland security movements.

With regard to curriculum integration, some police academies have identified certain topics (i.e., ethics, cultural diversity, and widely shared concerns of community members) as warranting incorporation throughout the entire curriculum, instead of being considered as separate subjects in isolation from others. Curriculum integration efforts are also designed to tie closely related learning objectives together, as opposed to compartmentalizing them into artificially separate classes or units. Curriculum integration is allied with problem-based learning. For example, instead of learning the laws of arrest in

one class and the mechanics of making an arrest in another class, students can learn the combination of law and mechanics in a realistic problem-based situation that simulates the community context.

As more justice and safety training programs make transitions to adult, problem-based learning strategies and curriculum integration, it will be even more important to assess the degree to which trainees are acquiring the skills and knowledge required to effectively perform their work. At the same time, concern is emerging among trainers and administrators about whether the means being used to perform assessment are valid by scientific standards. Officials are coming to the realization that a weeding out of trainees who are not deemed to have met minimal testing standards (or, alternatively, a failure to achieve such weeding out) could result in legal liability for their agencies in the absence of empirical evidence for the validity of testing tools. Litigation could conceivably be brought by a former trainee claiming that an invalid testing instrument was used as the basis for denying him/her the credential needed for employment; or it could be brought by parties claiming that use of such an instrument resulted in the inappropriate credentialing of justice and safety professionals who somehow failed to protect or serve them.

AN OVERVIEW OF THE STUDY

Context

Our research was conducted within the Kentucky Department of Criminal Justice Training (DOCJT). DOCJT operates out of the Kentucky Justice Cabinet and has responsibility for providing and overseeing training for some 400 law enforcement agencies across the state. Services are provided for city and county police departments, law enforcement telecommunications personnel, coroners, sheriffs' departments, airport and university police, state motor vehicle enforcement officers, and other law enforcement officials from local and state agencies. From facilities located in Louisville and Richmond, DOCJT provides both state-mandated entry-level training and in-service training for approximately 9,000 law enforcement officers annually.

Basic training cadets complete a 16-week curriculum consisting of 640 hours of instruction. They are tested on knowledge and skills