

The Journal of Forensic Vocational Analysis

Official Publication of the American Board of Vocational Experts

Editor

Chrisann Schiro-Geist, PhD
Diplomate/ABVE, IPEC
University of Memphis | Memphis, TN

Editorial Board

Mary Barros-Bailey, PhD
Diplomate, ABVE
Intermountain Vocational Services
Boise, Idaho

Scott Beveridge, PhD
Diplomate, ABVE
George Washington University
Washington, DC

J. Chad Duncan, PhD
Associate Member, ABVE
Salus University
Elkins Park, Pennsylvania

Jenipher S. Gaffney, MA
Diplomate, ABVE
Gaffney Counseling and Consulting
Vancouver, Washington

Cynthia P. Grimley, MS
Diplomate/IPEC, ABVE
Cynthia P. Grimley @ Assoc.
Lexington, South Carolina

Betty L. Hale, MRC
Fellow, ABVE
Commonwealth Vocational
Consultants
Lexington, Kentucky

Estelle Hutchinson, MS
Diplomate, ABVE
Vocational Directions, Inc.
Providence, Rhode Island

Kenneth J. Manges, PhD
Diplomate/IPEC, ABVE
Dr. Kenneth J. Manges & Assoc.
Cincinnati, Ohio

David Perry
Diplomate, ABVE
University North Dakota
Grand Forks, ND

Ronald Smolarski, MA
Diplomate/IPEC, ABVE
Beacon Rehabilitation
Ann Arbor, Michigan

Keith S. Wilkinson, MA
Diplomate, ABVE
Keith Wilkinson & Assoc.
Orange, California

Editorial Reviewers

Gray Broughton
John Berg
Trevor Duncan

Felicia Ferrara
Renee Jubrey
Sarah Cozort

Michelle Marmé
Michelle Weiss
Maurice Williams

ABVE Officers and Board of Directors

Dan Wolstein

President

Maria Babinetz

President-Elect

Brian Daly

Treasurer

Sara Statz

Secretary

Terry Leslie

Past President

DT North

Director-at-Large

David Perry

Director-at-Large

Matthew Putts

Director-at-Large

Scott Severt

Director-at-Large

Ron Smolarski

Director-at-Large

Romy Tota

Director-at-Large

Cheryl Chandler

Director-at-Large

Christina

Dillahunt-Aspillaga

Director-at-Large

Chrisann

Schiro-Geist

Director-at-Large

Scott Whitmer

Director-at-Large

Tara Foy

Executive Director

Tracy Steadman

Director of Membership & Certification

3739 National Dr. Suite 202
Raleigh, NC 27612
abve@abve.net
<http://www.abve.net>

The American Board of Vocational Experts (ABVE) is a professional credentialing body established as a not-for-profit organization. Persons who have attained diplomate or fellow status have advanced academic preparation in the areas of rehabilitation, psychology or counseling and hold advanced degrees from accredited institutions of higher education.

ABVE, representing both the private and public sectors of the rehabilitation enterprise, was founded in 1980 to ensure the integrity and uniqueness of the vocational expert and to set and maintain rigorous standards for ethical practice. As litigation continues to proliferate, and the courts continue to delineate and refine the law, the need for qualified vocational experts becomes essential in the resolution of complex vocational issues in our ever-evolving society.

The certified vocational expert is expected to maintain currency of knowledge regarding the effects of personal injury on earning capacity, labor market changes, hiring practices, knowledge of occupational requirements, as well as the growth and decline of patterns in local labor markets. The ABVE through the presentation of regularly scheduled professional educational seminars and through its various publications, assists the certified vocational expert in the maintenance and expansion of various competencies. The ABVE holds one national conference each year to provide a forum for the exchange of ideas and information regarding forensic practice.

Letter from the Editor

Dear Members of ABVE,

We are so lucky to have these wonderful articles available for you to read and learn from and incorporate into your practice. We start with “Differences in the quality of employment placement for vocational rehabilitation clients with disabilities by counselor’s with certified rehabilitation counselor status” (Yu et al.). This article will be helpful to those of you who come from the field of rehabilitation to better understand the value of credentials other than our valuable ABVE and IPEC credentials. The next credential most commonly obtained by our members is the certified rehabilitation counselor (CRC) credential. This article deals with the impact of CRC on placing clients with disabilities into competitive integrated employment. Then we have two amazing articles on AI, which were initially part of presentations at our last annual meeting in March, 2024. These authors, Christopher Skerit and Paul Bourgeois, really "get it" when it comes to AI and ABVE, as is evident in their articles for this issue, “Navigating the ethical frontier: evaluating AI's role in rehabilitation counseling decision-making,” and “Artificial intelligence & electronic medical records: Applications for rehabilitation professionals. Finally, we look again at issues in evaluation that have been a mainstay of this journal and the field of expert witnesses over time with Ron Smolarski’s “McCroskey MVQS transferrable skills software program.” Also, with the help of our editorial assistant, Ron Smolarski has created a list of possible topics for future submissions that may inspire your next submission to *JFVA*. Having a published peer-reviewed article under your belt enhances your resume and prestige in the field and the courtroom. Give this some serious thought.

Thank you!

Best,
Chris

The Journal of Forensic Vocational Analysis

Official Publication of the American Board of Vocational Experts

CONTENTS

Editorial

Chrisann Schiro-Geist..... 3

Articles

Differences in the Quality of Employment Placement for Vocational Rehabilitation Clients with Disabilities by Counselor's with Certified Rehabilitation Counselor Status..... 5

Xinhua Yu, Chrisann Schiro-Geist, Xiaofei Zhang, Patrick J. Krolik, Jun Cai,
Jayasimha Reddy Tippireddy, & Sushmitha Nandiki

Navigating the Ethical Frontier: Evaluating AI's Role in Rehabilitation Counseling Decision-Making.....20

Christopher Skerrit & Paul Bourgeois

Artificial Intelligence & Electronic Medical Records: Applications for Rehabilitation Professionals.....53

Christopher Skerrit & Paul Bourgeois

McCroskey MVQS Transferrable Skills Software Program.....67

Ron Smolarski

A Note on Upcoming Issues: Potential Topics.....

Sarah Cozort & Ron Smolarski

Differences in the Quality of Employment Placement for Vocational Rehabilitation Clients with Disabilities by Counselor's Certified Rehabilitation Counselor Status

Xinhua Yu, MD, Ph.D.

*Division of Epidemiology, Biostatistics, and Environmental Health
School of Public Health, University of Memphis*

Chrisann Schiro-Geist, Ph.D.

*University of Memphis Institute on Disability
College of Education, University of Memphis*

Xiaofei Zhang, Ph.D.

*Department of Computer Science
University of Memphis*

Patrick J Krolík, M.B.A.

*University of Memphis Institute on Disability
College of Education, University of Memphis*

Jun Cai, B.A., M.S.

*College of Health Sciences
University of Memphis*

Jayasimha Reddy Tippireddy

*Department of Computer Science
University of Memphis*

Sushmitha Nandiki

*Division of Epidemiology, Biostatistics, and Environmental Health,
School of Public Health, University of Memphis Institute on Disability, College of
Education, University of Memphis*

Abstract. Vocational rehabilitation (VR) counselors play a pivotal role in facilitating people with disabilities to obtain gainful employment. Certification as a certified rehabilitation counselor (CRC) ensures that the counselor possesses necessary knowledge and skills for VR services for disabled, matrimonial, and wrongful discharge clients, although certification is not required for counseling practice. However, as of 2024, only one-third of people with disabilities were employed in the United States and many of those jobs were in lower paying positions. The current study examines the impact of certification as a CRC on VR client employment outcomes using a survey of VR counselors linked with their clients' case services reports. We limited our study to clients between the ages of 16-60 who were without employment at the time of application for VR services. Among 26,803 VR clients seen by 184 counselors in four states, the overall employment rate was 36%, with higher rates among those clients whose counselors had CRC certification (38%) and other certifications (36%) than those whose counselors were without any certification (30%, $p < 0.01$ for both CRC vs. none, and other certifications vs. none). Similarly, clients of counselors with CRC had a higher rate of full-time employment (≥ 30 hours/week) than those whose counselors had no certification (23% vs. 16%, $p < 0.01$), a higher rate of competitive integrated employment than those whose counselors had no certification (27% vs. 13%, $p < 0.01$), and a lower rate of subminimum-wage employment ($< \$9.25/\text{hour}$). There were no statistically significant differences in the rates of living wage employment ($\geq \$15/\text{hour}$). These differences in employment outcomes can be explained by the client participant's characteristics such as age and disabilities, and counselor's characteristics such as age and working experience. Outcome-oriented and evidence-based interventions, including training in critical knowledge and skills in rehabilitation counseling, should be explored and implemented to improve the employment outcomes among VR clients.

Keywords: vocational rehabilitation, counselor, employment outcome, certified rehabilitation counselor (CRC), competitive integrated employment

Since its introduction in 1974, the certified rehabilitation counselor (CRC) examination has been considered to be the most reputable counseling certification in the United States (CRCC, 2022; Leahy & Holt, 1993). Passing the exam signifies a counselor's proficiency in providing effective vocational rehabilitation (VR) counseling services to individuals with disabilities. The rigor of the exam and its broad coverage of knowledge and skills needed in VR counseling have been widely recognized in the field of counseling (Leahy et al., 2019). The current CRC exam consists of 175 questions (150 are counted in the final score), covering 12

knowledge domains, each of them including several subdomains (Chan et al., 2021). Furthermore, the knowledge domains have been empirically evaluated periodically (Leahy et al., 2013; Leahy et al., 2019), and the most recent review, conducted in 2016, was based on the surveys of job roles and functions of VR counselors. These updates reflect current VR practices and have served as the basis for designing the current CRC exam (Leahy et al., 2019).

However, studies have shown that individuals with disabilities were only half as likely to be employed compared with

their peers without disabilities (Vornholt et al., 2018; Day & Taylor, 2019; BLS, 2023). In addition, among those who were employed, individuals with disabilities were less likely to receive living wages (Lustig & Strauser, 2004; Yu et al., 2023b). To address the employment disparities between individuals with and without disabilities, vocational rehabilitation has been promoting competitive integrated employment (CIE) over the past two decades (Wehman et al., 2018). CIE advocates inclusive workplaces, comparable compensations, and equal opportunities for career advancement for individuals with disabilities (Lindsay et al., 2018; Taylor et al., 2022). VR counselors play a critical role in pivoting individuals with disabilities into CIE.

Previous research has shed light on various factors influencing the effectiveness of VR counselors (Wheaton & Berven, 1994). Client characteristics, such as age, education, and pre-application employment status, significantly affect the chance of obtaining employment after VR services (Sevak et al., 2015; Wang & Ethridge, 2022). It is also well recognized that counselor's characteristics such as rehabilitation counseling training and forging work alliances are crucial in supporting clients to obtain employment (Chan et al., 2017; Sevak et al., 2019). Studies have explored the role of master's degree level education in equipping counselors with the necessary knowledge and skills to support individuals with disabilities (Mackay et al., 2018; Yu et al., 2023a). Additionally, researchers have examined the impact of different types of training programs and technical assistance on counselors' abilities to effectively address the unique needs of their clients (Tansey et al., 2022).

However, half of current rehabilitation counselors are trained in many related fields, such as social work, psychology, special education, and mental health counseling (Mackay et al., 2018; Yu et al., 2023a). Furthermore, the service-oriented job market demands different skillsets from counselors to achieve the mission of "maximizing clients' independence and integration into [the] competitive labor market" (RSA, 2023). Therefore, the competencies associated with the CRC exam have evolved to encompass evidence-based training and outcome-based practices. By incorporating evidence-based training into their practice, counselors can rely on scientific research and proven methodologies to guide their interventions (Leahy et al., 2018). The broad knowledge domains covered by CRC will also prepare VR counselors with comprehensive knowledge and skills that are beyond the needs met by daily VR services.

In the era of fast technological innovations, essential rehabilitation counseling knowledge and a deep understanding of counseling theories and medical and psychosocial mechanisms can help VR counselors adapt to a rapidly changing practice environment (Chan et al., 2017; Tansey et al., 2022). Furthermore, adopting outcome-based practices enables counselors to prioritize measurable and impactful outcomes for people with disabilities, ultimately enhancing their employment prospects (Yu et al., 2023a).

Research Questions

There is little research on whether a counselor's CRC status can improve a client's employment outcomes. This study addresses this gap. Specifically, it is

designed to answer the following research questions (RQs):

RQ1 What are the differences in the employment outcomes, including overall employment, employment with living wage, full-time employment, employment with subminimum wage, and competitive integrated employment, among VR clients with disabilities who have counselors with CRC and those whose counselors do not have CRC?

RQ2 Can characteristics of VR clients and counselor certification explain these differences?

Vocational counseling for individuals with IDD is challenging, as IDD can interfere with an individual's general mental faculties, including basic self-sufficiency and basic independent thinking. The overarching goal of the vocational rehabilitation program, jointly funded by federal and state, is to help clients, including IDD clients, to obtain the necessary skills to enter the labor market (Leahy et al., 2019; Commission on Rehabilitation Counselor Certification [CRCC], 2022; Rehabilitation Services Administration [RSA], 2022). Typically, vocational training is highly regimented and structured, and clients carry out pre-scheduled activities under the supervision of a multi-disciplinary team that may consist of a social worker, occupational therapist, teacher, counselor, psychologist, and other associated paraprofessionals (Goettl et al., 2020). At a minimum, clients learn to keep themselves clean, wear appropriate clothes, carry out their responsibilities, and meet both pre-established academic and occupational expectations. There is consistent evidence

indicating that individuals who underwent vocational training demonstrated decreased reliance on support compared to their counterparts and attained independent living at an earlier stage (Migliore et al., 2007; Smith, 2013; Cheng, 2018).

Many factors have been linked with VR counselors' case closure rates (Sulewskiet et al., 2012; Wehman et al., 2014; Sevak et al., 2019). For example, clients with lower socioeconomic status were more likely to have unsuccessful and poor case closure outcomes (Wheaton et al., 1996; Hollard et al., 2008; Yamamoto et al., 2013; Bates-Maves et al., 2017; Sherman et al., 2017). Employment outcomes among VR clients can be influenced by various factors, both personal and contextual, including those related to employers. Furthermore, prior research, including our own, has indicated that counselors possessing a master's degree in rehabilitation counseling exhibit higher rates of case closure compared to those with alternative training (Wheaton et al., 1994; McKay et al., 2018a; 2018b; Sevak et al., 2019; Yu et al., 2022).

Materials and Methods

The Institution Review Board (IRB) of the primary authors' institution approved this study before its initiation, and state VR agencies of the participating states, including Connecticut (CT), Florida (FL), Idaho (ID), and Utah (UT), provided support for the study implementation.

Counselor Participants

We invited all VR counselors employed by the participating states' vocational rehabilitation agencies as of 2017 to participate in this study. Emails with a link

to the online survey were sent to the VR counselors by the state VR agencies. No incentive was provided. This study included only those counselors who completed all survey questions and had at least one linked VR client during the study period (N = 184) (Table 1).

Client Participants

All clients with disabilities who had received services from the participating counselors were extracted from RSA-911 case reports by the state VR agencies. We restricted the study cohort to client participants aged 16-60 and excluded those who were employed at the time of VR application, as well as those who died before exiting VR services. In addition, we excluded those who reported no impairment or became ineligible before the time of exit, and those with disabilities too significant to permit employment or continuation of counseling. These exclusion criteria removed potential biases in the chance of employment due to age, pre-employment status, and other factors. The final analysis included 26,803 VR client participants who were not employed at the application and were eligible for employment at the exit of VR services (Table 2).

Measurements and Procedures

The Qualtrics® online survey system was used to develop, implement, and test the survey instruments (Mackay et al., 2018). There were 23 items in the questionnaire, including the counselor participant's demographics, year of graduation, highest degree and disciplines, years of experience as a rehabilitation counselor, types of certifications, self-perceived preparedness for work as a rehabilitation counselor, and

knowledge and concerns about rehabilitation counseling. The counselors' survey records were linked with their clients' original case service records for the years 2014 to 2018 (varied by state), which were the same data sources that VR agencies prepared for the de-identified RSA 911 case reports. The staff at each participating state VR agency used counselors' names that appeared in both data to match the counselor's survey and client's case services records. After matching, the personal identification information for both counselors and clients was removed. The final analytic data were cleaned and anonymized by the original study investigators.

The individual case records included client participants' demographics, primary support at time of application, closure status (employed or not) at exit, and if employed, job title, type of work environment (including competitive integrated employment, employment with support, etc.), working hours per week, and hourly wage. The status of full-time employment referred to those jobs with ≥ 30 hours/week. The status of living wage employment referred to those jobs paying $\geq \$15/\text{hour}$, and subminimum wage employment referred to those paying $< \$9.25/\text{hour}$. Note that the states of FL and CT have a higher minimum wage than $\$9.25/\text{hour}$ and were thus excluded in the subminimum wage analysis. The client participant's disability type and severity were also included.

Statistical Analysis

The main outcomes measured were overall employment, full-time employment, employment with a living wage and employment with a subminimum wage, and

competitive integrated employment (CIE). The main predictor was the counselor's CRC status. Both client characteristics and counselor participants' CRC status were presented with descriptive statistics using means or medians for continuous variables, and frequencies for categorical variables.

To obtain adjusted rate differences and odds ratios (ORs), multilevel logistic regressions were used with generalized estimate

equation (GEE) methods and with robust variance to account for the clustering of clients within counselors, in addition to the client's characteristics and counselor's credentials/certifications. All analyses were conducted with Stata 16.1 (Stata LLC, College Station, Texas), and a *p*-value of less than 0.01 was considered statistically significant to account for the multiple comparisons.

Figure 1

Characteristics of Counselor Participants by Certification Status

		Total: N (column %)	Certifications (row %)		
			CRC (%)	Other (%)	None (%)
Total		184 (100%)	107 (58%)	32 (17%)	45 (24%)
State					
	CT	24 (13%)	11 (46%)	4 (17%)	9 (38%)
	FL	41 (22%)	16 (39%)	6 (15%)	19 (46%)
	ID	37 (20%)	25 (68%)	4 (11%)	8 (22%)
	UT	82 (44%)	55 (67%)	18 (22%)	9 (11%)
Sex					
	Female	127 (69%)	70 (55%)	20 (16%)	37 (29%)
	Male	57 (31%)	37 (65%)	12 (21%)	8 (14%)
Age (mean, SD)		43.3 (10.7)	42.7 (10.6)	44.0 (10.9)	44.3 (10.8)
Years of experience (mean, SD)		8.5 (7.0)	9.6 (7.0)	6.0 (4.4)	7.7 (8.1)
More than six years of working experience					
	No	96 (52%)	50 (52%)	19 (20%)	27 (28%)
	Yes	88 (48%)	57 (65%)	13 (15%)	18 (20%)
caseload (median and IQR)		52 (36 - 72)	53 (37 - 67)	57 (24 - 74)	50 (41 - 76)
caseload groups					
	1 - 35	46 (25%)	25 (54%)	10 (22%)	11 (24%)
	36 - 50	43 (23%)	25 (58%)	5 (12%)	13 (30%)
	51-75	54 (29%)	36 (67%)	9 (17%)	9 (17%)
	75-180	41 (22%)	21 (51%)	8 (20%)	12 (29%)

Having a master's degree					
No	27 (15%)	3 (11%)	6 (22%)	18 (67%)	
Yes	157 (85%)	104 (66%)	26 (17%)	27 (17%)	
Master's degree in Rehabilitation Counseling					
No	76 (41%)	21 (28%)	23 (30%)	32 (42%)	
Yes	108 (59%)	86 (80%)	9 (8%)	13 (12%)	

Note: CT: Connecticut; FL: Florida; ID: Idaho; UT: Utah. SD: standard deviation; IQR: interquartile range. The percent in the column for total *N* reads vertically, while the percentages in the certification columns should read horizontally, i.e., the proportion of participants across different certifications.

Results

There were 184 counselors from 4 states included in this study (Table 1). Characteristics of these counselors are presented in Table 1, also separated by counselor's CRC status. Overall, about 58% of counselors had obtained CRC, 17% had other certifications, such as mental health counselor licensure and professional counselor licensure, and 24% of counselors did not have any certifications. Counselors from the states of ID and UT were more likely to have CRC, males generally had more working experience, and those who had a master's degree were more likely to have CRC, as well. As expected, about 80% of those with a rehabilitation counseling degree had CRC.

Table 2 presents the characteristics of VR clients served by the above counselors.

Among 26,803 client participants included in this study, about 41% of client participants were from UT, and 35% were from ID. The mean age was 34 years, and 86% of them were Caucasian Americans. About 38% of them had a high school diploma, but 22% did not. Psychological (46.5%) and cognitive (21.8%) disabilities accounted for the majority of disabilities, and 44.5% of the participants had more significant disabilities. In addition, about 62% were served by counselors with CRC, and 20% were served by counselors without any certifications. There were also differences by client's education status, disability types, severity of disabilities, and primary support at applications between those served by counselors with CRC, those served by counselors with other certificates, and counselors without any certifications. However, there was no clear pattern established by these different characteristics.

Table 2

Characteristics of Clients by Counselor's Certification Status

	Total: <i>N</i> (column %)	Certifications (row %)		
		CRC (%)	Other (%)	None (%)
Total	26,803 (100%)	16,651 (62%)	4,779 (18%)	5,373 (20%)
State				

CT	3,030 (11%)	1,402 (46%)	622 (21%)	1,006 (33%)
FL	3,416 (13%)	1,407 (41%)	391 (11%)	1,618 (47%)
ID	9,311 (35%)	6,049 (65%)	1,184 (13%)	2,078 (22%)
UT	11,046 (41%)	7,793 (71%)	2,582 (23%)	671 (6%)
Age (mean, SD)	33.7 (12.6)	34.3 (12.4)	34.7 (12.4)	30.8 (13.1)
Race				
American Indian or Alaska Native	461 (2%)	308 (67%)	78 (17%)	75 (16%)
Asian	326 (1%)	197 (60%)	62 (19%)	67 (21%)
Black or African American	1,954 (7%)	1,016 (52%)	297 (15%)	641 (33%)
Multiracial	487 (2%)	298 (61%)	63 (13%)	126 (26%)
Unknown	502 (2%)	179 (36%)	38 (8%)	285 (57%)
White	13,073 (86%)	14,653 (64%)	4,241 (18%)	4,179 (18%)
Education at application				
Elementary education	931 (4%)	586 (63%)	170 (18%)	175 (19%)
Secondary education, no HS degree	4,999 (19%)	2,745 (55%)	897 (18%)	1,357 (27%)
HS degree or equivalent	10,115 (38%)	6,437 (64%)	1,927 (19%)	1,751 (17%)
Post-secondary, no degree	3,940 (15%)	2,679 (68%)	753 (19%)	508 (13%)
Associate degree or vocation/tech	1,864 (8%)	1,267 (68%)	335 (18%)	262 (14%)
Special education	1,728 (7%)	1,141 (66%)	211 (12%)	376 (22%)
Bachelor or above	1,720 (6%)	1,033 (60%)	297 (17%)	390 (23%)
Other	1,506 (6%)	763 (51%)	189 (13%)	554 (37%)
Current student at application				
No	24,748 (92%)	15,452 (62%)	4,476 (18%)	4,820 (19%)
Yes	2,055 (8%)	1,199 (58%)	303 (15%)	553 (27%)
Disability types				
Psychosocial	12,474 (47%)	7,911 (63%)	2,151 (17%)	2,412 (19%)
Cognitive	5,839 (22%)	3,362 (58%)	1,115 (19%)	1,362 (23%)
Physical	1,526 (6%)	933 (61%)	323 (21%)	270 (18%)
Mobility	1,756 (7%)	1,186 (67%)	268 (15%)	302 (17%)
Manipulative	1,002 (4%)	674 (67%)	172 (17%)	156 (16%)
Hearing	1,005 (4%)	614 (61%)	69 (7%)	322 (32%)
Vision	227 (1%)	109 (48%)	100 (44%)	18 (8%)
communicative	114 (0.4%)	64 (56%)	20 (18%)	30 (26%)

	Other	2,860 (11%)	1,798 (63%)	561 (20%)	501 (18%)
Disability status					
	Significant	14,792 (55%)	9,602 (65%)	2,835 (19%)	2,355 (16%)
	Most significant	12,011 (45%)	7,049 (59%)	1,944 (16%)	3,018 (25%)
Primary support at the application					
	Personal income	1,530 (6%)	944 (62%)	294 (19%)	292 (19%)
	Public supports	6,161 (23%)	3,807 (62%)	1,008 (16%)	1,346 (22%)
	Family and friends	14,194 (53%)	8,670 (61%)	2,542 (18%)	2,982 (21%)
	Other	2,234 (8%)	1,563 (70%)	403 (18%)	268 (12%)
	Unknown	2,684 (10%)	1,667 (62%)	532 (20%)	485 (18%)

Note: CT: Connecticut; FL: Florida; ID: Idaho; UT: Utah. SD: standard deviation. HS: High school

RQ1 What are the differences in the employment outcomes, including overall employment, employment with a living wage, full-time, subminimum wage, and within the competitive integrated employment among VR clients with disabilities between counselors with CRC and those without CRC?

The employment outcomes are presented in Table 3, sorted by the counselor's CRC status. At closure, about 36% of VR client participants obtained employment (Table 3), 21% worked full-time (≥ 30 hours/week), 6% worked for a living wage, and 24% of them worked with competitive integrated employment. However, the overall employment rate was significantly higher among clients served by counselors with CRC than those served by counselors with other certifications or with no certification

(CRC vs. None: 38% vs. 20%, $p < 0.01$; Other vs. None: 36% vs. 20%, $p < 0.01$; and CRC vs. Other: not statistically significant after adjusting for multiple comparisons). Similar patterns persisted for full time employment (CRC vs. None: 23% vs. 16%, $p < 0.01$) and for CIE (CRC vs. None: 27% vs. 13%, $p < 0.01$). When combining no certification with other certifications, those clients whose counselors had CRC still had higher successful closure rates than those whose counselors had no certification. In addition, among VR clients and counselors in the states of ID and UT, those clients served by counselors with CRC had significantly lower rates of subminimum wage than those without any certification (CRC vs. None: 5% vs. 7%, $p < 0.01$). Furthermore, although the average working hours reached 30 hours/week, the average hourly wage was \$11.4/hour if employed.

Table 3

Employment Outcomes among VR Clients with Disabilities by Counselor's CRC Status

	Total (%)	Certifications			None/other combined (%)
		CRC (%)	Other (%)	None (%)	
Employed at closure	9,948 (36%)	6,314 (38%)*	1,725 (36%)*	1,609 (30%)	3,334 (33%)[#]
Full-time employment	5,700 (21%)	3,763 (23%)*	1,057 (22%)*	880 (16%)	1,937 (19%)[#]
Living wage employment	1,603 (6%)	1,020 (6%)	309 (6%)	274 (5%)	583 (6%)
Working environment					
CIE	6,481 (24%)	4,466 (27%)*	1,310 (27%)*	705 (13%)	2,015 (20%)[#]
Employed with support	768 (3%)	453 (3%)	72 (2%)	241 (5%)	313 (3%)
Employed without support	1,667 (6%)	1,008 (6%)	219 (5%)	422 (8%)	641 (6%)
Other	794 (3%)	387 (2%)	124 (3%)	241 (4%)	365 (4%)
Subminimum wage employment	1,064 (5%)	702 (5%)*	181 (5%)*	181 (7%)	362 (6%)
Among those employed					
Weekly working hours (mean, SD)	30 (11)	30 (11)	31 (11)	29 (11)	30 (11)
Hourly wage (mean, SD)	11.4 (5.5)	11.2 (5.0)	11.7 (5.7)	11.8 (7.1)	11.7 (6.4)

Note: CRC: certification in rehabilitation counseling; CIE: competitive integrated employment; SD: standard deviation.

The highlighted numbers with * indicate statistical significance at $p < 0.05$.

RQ2 Can the characteristics of VR clients and counselor certification explain these differences?

We conducted a multivariate analysis by including the client's characteristics and the counselor's characteristics in the model (Table 4). We found that the client's

characteristics could partially explain the differences in the employment outcomes between clients served by counselors with CRC and those without CRC. Additional adjustments for the counselor's characteristics did not qualitatively change the differences.

Table 4

Employment Outcomes by Characteristics of Clients and Counselor Certification

	Overall employment			Full-time employment			Living wage employment			Competitive integrated employment			Subminimum wage employment		
	Rate	OR (95%CI)	p value	Rate	OR (95%CI)	p value	Rate	OR (95%CI)	p value	Rate	OR (95%CI)	p value	Rate	OR (95%CI)	p value
Model 1															
No CRC	35%	ref 1.11 (0.97 - 1.28)	0.12	21%	ref 1.00 (0.88 - 1.15)	0.95	6%	Ref 0.94 (0.80 - 1.11)	0.47	27%	ref 1.06 (0.90 - 1.23)	0.49	5%	ref 0.94 (0.73 - 1.21)	0.65
CRC	37%			21%			6%			28%			5%		
Model 2															
No CRC	34%	ref 1.11 (0.95 - 1.30)	0.19	22%	ref 0.91 (0.78 - 1.06)	0.21	6%	Ref 0.90 (0.75 - 1.07)	0.23	27%	ref 1.02 (0.85 - 1.22)	0.84	5%	ref 1.17 (0.86 - 1.58)	0.31
CRC	37%			21%			6%			27%			5%		
Model 1															
None	37%	ref 1.03 (0.84 - 1.26)	0.77	22%	ref 0.93 (0.78 - 1.11)	0.44	7%	Ref 0.85 (0.67 - 1.08)	0.19	27%	ref 1.01 (0.77 - 1.34)	0.92	6%	ref 0.82 (0.57 - 1.18)	0.29
CRC	37%			21%			6%			28%			5%		
Other	33%	1.06 (0.68 - 1.06)	0.16	20%	1.07 (0.71 - 1.07)	0.19	6%	1.09 (0.64 - 1.09)	0.19	27%	1.26 (0.69 - 1.26)	0.66	5%	1.18 (0.51 - 1.18)	0.24
Model 2															
None	35%	ref 1.09 (0.89 - 1.34)	0.39	23%	ref 0.88 (0.72 - 1.08)	0.23	7%	ref 0.84 (0.66 - 1.07)	0.17	26%	ref 1.06 (0.81 - 1.39)	0.65	5%	ref 0.98 (0.64 - 1.48)	0.91
CRC	37%			21%			6%			27%			5%		
Other	34%	1.18 (0.79 - 1.18)	0.73	22%	1.19 (0.76 - 1.19)	0.67	6%	1.17 (0.69 - 1.17)	0.43	27%	1.40 (0.81 - 1.40)	0.66	4%	1.17 (0.47 - 1.17)	0.2

Note: Model 1 was adjusted for client’s characteristics, and model 2 was further adjusted for counselor’s characteristics.

Discussion

Our study was the first to comprehensively explore the impact of counselors’ CRC status on the differences of employment outcomes among VR clients with disabilities. Compared with counselors without any certification, those counselors

with CRC were more likely to have higher successful closure rates, i.e., their clients had higher rates of overall employment, full time employment, and competitive integrated employment, and also had a lower rate of subminimum employment among clients living in the two states with a minimal wage at the federal level. On the other hand, client characteristics, such as age and disabilities,

and counselors' characteristics such as age and work experience, might partially explain these differences in employment outcomes.

In this study, about 59% of VR counselors had a master's degree in rehabilitation counseling; among them, 80% obtained CRC. Consistent with our previous studies (Mackay et al., 2018; Yu et al., 2023a; Yu et al., 2023b), training in rehabilitation counseling helps counselors to be more prepared to provide vocational counseling for clients with disabilities, form alliances with clients, and improve employment outcomes compared with those with trainings in other fields.

The CRC exam covers broad knowledge domains that span disabilities, career placement, and counseling skills (Chan et al., 2021). Obtaining a CRC may equip counselors with necessary knowledge and skills for rehabilitation counseling, thus ensuring proficiencies in rehabilitation counseling during VR services. Even among those without rehabilitation counseling degrees, the current study suggested that CRC might prepare counselors for helping their clients achieve better employment outcomes. There was an 8% difference in overall employment rates between those clients whose counselors had CRC and those whose counselors had no certification.

On the other hand, other certifications or licenses may also provide some training in rehabilitation counseling. For example, licensed mental health counselors and licensed professional counselors may be able to apply related knowledge and skills to rehabilitation counseling. As shown in the current study, those with other certifications

had only slightly lower overall employment rates among their clients than those with CRC.

Finally, it is of note that the most important determinants of employment outcomes might be client characteristics (Sevak et al., 2015; Sevak et al., 2019). For example, a client's severity of disabilities, education, and pre-employment training were well-recognized determinants of employment. Community factors such as employment opportunities, employer's attitudes and cooperation, and local economic development may play significant roles, as well (Erickson et al., 2014; Bonaccio et al., 2020). In the CRC exam, skills in job placement and identifying local career resources are the key domains that prepare for VR counselors to achieve higher successful closure rates (Leahy et al., 2019).

Our research underlined the needs of rehabilitation counselor training, reflected by the CRC, among all VR counselors regardless of education background. The CRC exam also includes domains related to forensic vocational evaluation, thus allowing VR counselors equipped with knowledge and skills to integrate vocational assessment with life care plans (Robinson, 2014). The broad domains covered by CRC also prepare VR counselors to understand the legal consequences of employment termination and disabilities and to apply forensic transferable skills assessments in their VR practice. There is still much to be studied in bridging forensic vocational evaluation and rehabilitation counseling services.

This study should be interpreted with some limitations in mind. Only 184 counselors were included in this analysis, despite the

large sample size of linked client data. Only four states participated in this survey. Thus, one should be cautious in generalizing the findings to other populations. Furthermore, we were not able to explore the impact of CRC on clients' employment outcomes among those who were not trained in rehabilitation counseling due to the small sample size of counselors in this group. There was inadequate information about the employment details such as employment sustainability and local employment opportunities. Due to limited data, we were not able to distinguish different types of employment, such as supported employment and self-employment, beyond competitive integrated employment.

In conclusion, counselors with CRC were more likely to have higher successful closure rates than those without any certification. However, in the age of information and fast-evolving technology, more research is needed to prepare VR counselors when facing these challenges, and evidence-based, outcome-oriented updates on knowledge and skills covered by the CRC exam are essential.

References

- BLS. (2023). *Bureau of Labor Statistics: Persons with a Disability: Labor Force Characteristics Summary. February 23, 2023.* . Retrieved 07/23 from <https://www.bls.gov/news.release/disabl.nr0.htm>
- Bonaccio, S., Connelly, C. E., Gellatly, I. R., Jetha, A., & Martin Ginis, K. A. (2020). The Participation of People with Disabilities in the Workplace Across the Employment Cycle: Employer Concerns and Research Evidence. *Journal of Business and Psychology*, 35(2), 135-158. <https://doi.org/10.1007/s10869-018-9602-5>
- Chan, F., Bishop, M., Chronister, J., Lee, E.-J., & Chiu, C.-Y. (2021). *Certified Rehabilitation Counselor Examination Preparation* (3rd ed.). Springer.
- Chan, F., Tansey, T. N., Chronister, J., McMahon, B. T., Iwanaga, K., Wu, J.-R., Chen, X., Lee, B., Bengtson, K., Umucu, E., Flowers, S., & Moser, E. (2017). Rehabilitation Counseling Practice in State Vocational Rehabilitation and the Effect of the Workforce Innovation and Opportunity Act (WIOA). *Journal of Applied Rehabilitation Counseling*(3), 20-28. <https://doi.org/10.1891/0047-2220.48.3.20>
- CRCC. (2022). *Commission on Rehabilitation Counselor Certification*. Retrieved August 16 from <https://crccertification.com/crcc-role-and-function-study/>
- Day, J. C., & Taylor, D. (2019). *In Most Occupations, Workers With or Without Disabilities Earn About the Same.* . Census Bureau. Retrieved 07/23 from <https://www.census.gov/library/stories/2019/03/do-people-with-disabilities-earn-equal-pay.html>
- Erickson, W. A., vonSchrader, S., Bruyere, S. M., & VanLooy, S. A. (2014). The Employment Environment: Employer Perspectives, Policies, and Practices Regarding the Employment of Persons With Disabilities. *Rehabilitation Counseling Bulletin*, 57(4), 195-208.

- <https://doi.org/10.1177/0034355213509841>
- Leahy, M. J., Chan, F., Iwanaga, K., Umucu, E., Sung, C., Bishop, M., & Strauser, D. (2019). Empirically derived test specifications for the certified rehabilitation counselor examination: Revisiting the essential competencies of rehabilitation counselors. *Rehabilitation Counseling Bulletin*, 63(1), 35-49.
- Leahy, M. J., Chan, F., Sung, C., & Kim, M. (2013). Empirically Derived Test Specifications for the Certified Rehabilitation Counselor Examination. *Rehabilitation Counseling Bulletin*, 56(4), 199-214. <https://doi.org/10.1177/0034355212469839>
- Leahy, M. J., Del Valle, R. J., Landon, T. J., Iwanaga, K., Sherman, S. G., Reyes, A., & Chan, F. (2018). Promising and evidence-based practices in vocational rehabilitation: Results of a national Delphi study. *Journal of Vocational Rehabilitation*, 48(1), 37-48. <https://doi.org/10.3233/jvr-170914>
- Leahy, M. J., & Holt, E. (1993). Certification in rehabilitation counseling: History and process. *Journal of Applied Rehabilitation Counseling*, 24(4), 5-9.
- Lindsay, S., Cagliostro, E., Albarico, M., Mortaji, N., & Karon, L. (2018). A Systematic Review of the Benefits of Hiring People with Disabilities. *J Occup Rehabil*, 28(4), 634-655. <https://doi.org/10.1007/s10926-018-9756-z>
- Lustig, D., & Strauser, D. (2004). A living wage for individuals with disabilities: implications for rehabilitation professionals [Article]. *The Journal of Rehabilitation*, 70, 3-6. <https://link.gale.com/apps/doc/A118106213/HRC?u=googlescholar&sid=googleScholar&xid=42c33b6b>
- Mackay, M. M., Suedmeyer, E. S., Schiro-Geist, C., West, S. L., & Strohmmer, D. C. (2018). Closure rates and counselor education: An exploration of why counselors with MRC degrees do not have better client outcomes than other master's-level counselors. *Journal of Vocational Rehabilitation*, 49, 389-400. <https://doi.org/10.3233/JVR-180982>
- Robinson, R. (2014). *Foundations of forensic vocational rehabilitation*. Springer Publishing Company.
- RSA. (2023). *Rehabilitation Services Administration. RSA mission*. Retrieved 07/23 from <https://rsa.ed.gov/about>
- Sevak, P., Houtenville, A. J., Brucker, D. L., & O'Neill, J. (2015). Individual Characteristics and the Disability Employment Gap. *Journal of Disability Policy Studies*, 26(2), 80-88. <https://doi.org/10.1177/1044207315585823>
- Sevak, P. H., Mann, D. R., & O'Neill, J. (2019). Personal and Contextual Factors Associated With Successful Vocational Rehabilitation and Employment Outcomes. *Rehabilitation Counseling Bulletin*, 62(3), 180-191. <https://doi.org/10.1177/0034355218814921>
- Tansey, T. N., Anderson, C., Strauser, D., Bishop, M., Chan, F., & Wehman, P. (2022). Fortune favors the bold: Special series on the vocational rehabilitation technical assistance

- center for quality employment. *Journal of Vocational Rehabilitation*, 58(1), 3-10.
<https://doi.org/10.3233/jvr-221220>
- Taylor, J., Avellone, L., Brooke, V., Wehman, P., Inge, K., Schall, C., & Iwanaga, K. (2022). The impact of competitive integrated employment on economic, psychological, and physical health outcomes for individuals with intellectual and developmental disabilities. *J Appl Res Intellect Disabil*, 35(2), 448-459.
<https://doi.org/10.1111/jar.12974>
- Vornholt, K., Villotti, P., Muschalla, B., Bauer, J., Colella, A., Zijlstra, F., Van Ruitenbeek, G., Uitdewilligen, S., & Corbière, M. (2018). Disability and employment – overview and highlights. *European Journal of Work and Organizational Psychology*, 27(1), 40-55.
<https://doi.org/10.1080/1359432X.2017.1387536>
- Wang, Y. C., & Ethridge, G. (2022). Identifying factors that promote successful vocational rehabilitation case closure: Comparison of individual characteristics, VR experiences and state economic conditions. *Journal of Vocational Rehabilitation*, 56(2), 139-147.
<https://doi.org/10.3233/JVR-221178>
- Wehman, P., Taylor, J., Brooke, V., Avellone, L., Whittenburg, H., Ham, W., Brooke, A. M., & Carr, S. (2018). Toward Competitive Employment for Persons with Intellectual and Developmental Disabilities: What Progress Have We Made and Where Do We Need to Go. *Research and Practice for Persons with Severe Disabilities*, 43(3), 131-144.
<https://doi.org/10.1177/1540796918777730>
- Wheaton, J. E., & Berven, N. L. (1994). Education, experience and caseload management practices of counselors in a state vocational rehabilitation agency. *Rehabilitation Counseling Bulletin*, 38(1).
- Yu, X., Schiro-Geist, C., Harmon, M. J., Zhang, X., Kansakar, Y., Krolick, P. J., Williams, M., Goodwill, M. E., & Cozort, S. (2023a). Having a Master's Degree in Rehabilitation Counseling Leads to Higher Closure Rates Among Persons With Intellectual and Developmental Disabilities From the Outcome-Based Perspective. *Journal of Applied Rehabilitation Counseling*, 54(2), 119-135.
<https://doi.org/10.1891/JARC-2021-0020>
- Yu, X., Schiro-Geist, C., Krolick, P. J., Zhang, X., & Cai, J. (2023b). Disparities in the Quality of Employment Placement and Live Wage Employment by Counselor's Training and Caseload among Their Clients with Disabilities. *The Journal of Forensic Vocational Analysis*, 4.

Navigating the Ethical Frontier: Evaluating AI's Role in Rehabilitation Counseling Decision-Making

Christopher Skerrit

CRC, ABVE/F, IPEC, CVE, CLCP, MSCC, CEAS

Paul Bourgeois

CRC, NCC, Psychology Department, University of New Haven

Abstract. This manuscript delves into the impact of Artificial Intelligence (AI), particularly ChatGPT4, on ethical decision-making in rehabilitation counseling. With AI becoming more prevalent, rehabilitation counselors are increasingly likely to consult platforms like ChatGPT4 for insights into ethical dilemmas. This study compares ChatGPT4's responses to ethical inquiries with the expert advisory opinions provided by the commission on rehabilitation counselor certification (CRCC, 2023) to evaluate AI's alignment with established ethical standards in the field. The analysis reveals that while ChatGPT4 can offer valuable preliminary guidance, its responses sometimes lack the nuanced understanding and depth of human expert advice. The research highlights the critical need for human judgment in ethical decision-making, suggesting that AI should complement but not replace traditional ethical deliberation processes. Additionally, the study discusses the adaptation and relevance of existing ethical decision-making models in the era of AI, proposing a framework for integrating AI technologies into ethical practices responsibly. This work highlights the potential benefits and limitations of AI in rehabilitation counseling, calling for further research and the development of comprehensive guidelines to ensure ethical integrity in the face of technological advancements.

Keywords: rehabilitation counseling, AI, ChatGPT4, tech ethics, commission on rehabilitation counselor certification

The integration of artificial intelligence (AI) into rehabilitation counseling is not just offering innovative solutions; it's also introducing new ethical challenges, prompting a potential paradigm shift in the field. This dynamic intersection of technology and ethics highlights the importance of established ethical frameworks, such as those created and disseminated by the commission on rehabilitation counselor certification (CRCC). The CRCC's advisory opinions are invaluable and represent one of the few formative and widely-accepted sources of

guidance to help rehabilitation counselors navigate the complex ethical landscapes inherent to professional practice. These opinions not only reinforce ethical standards but also foster a deeper understanding of professional responsibilities in evolving contexts (Hill et al., 2023).

The application of CRCC advisory opinions in the sphere of research practice can result in a deeper understanding of how ethical standards may be applied to the complicated, real-life experiences of rehabilitation counselors. Indeed, research

initiatives have focused on the case-oriented analysis where the aforementioned situations of difficulties and essential complex decision-making unfold. As an illustration, Shaw and Lane (2008) organized the content analysis of the CRCC advisory opinions archive by categorizing opinions based on the standard and issue addressed. This study highlighted several recurring themes, such as navigating conflicts between ethical standards and legal or employer directives.

Hartley and Cartwright (2016) also explored the CRCC advisory opinions to gauge emerging ethical concerns and the practical challenges counselors face when applying ethical codes in diverse scenarios. Their study emphasized how these opinions can be used as a reflective tool for counselors, helping them to consider not only the letter but the spirit of ethical guidelines in complex situations. Such research emphasizes the adaptive nature of ethical practice, highlighting the need for continuous education and frequent guideline revisions to address new challenges, especially those brought about by technological advancements.

As AI advances, it is increasingly performing tasks traditionally done by humans, from recommending movies and music to making clinical diagnoses and assessing risks, such as criminal recidivism (Travaini et al., 2022). This technological shift brings many benefits, including the capacity to analyze complex data sets at unprecedented speed and with exceptional accuracy. In medicine, for example, the integration of AI has significantly enhanced diagnostic accuracy in various specialties like radiology, cardiology, and dermatology, often achieving results that match or even surpass those of human experts (Benzinger

et al., 2023). In the realm of rehabilitation counseling, AI's potential is also being explored, particularly in life care planning (Bourgeois et al., 2024).

The effectiveness of AI implementation is highly dependent on the level of trust users place in the technology, which varies significantly across different domains (Zhang et al., 2023), with those who have greater familiarity and expertise in AI more likely to support autonomous applications compared to those with limited understanding (Horowitz et al., 2024). This variability in trust can be attributed to the relative novelty and unparalleled power of AI compared to older technologies, which leaves users with uncertainties regarding its risks and benefits (Shin, 2021). While some individuals exhibit what has been termed "algorithmic appreciation," where they trust AI's capabilities equally or even more than those of human experts for certain tasks, others may develop "algorithmic aversion."

Algorithmic aversion develops when AI systems make errors that are perceived as different than mistakes that would be or have been made by humans. These errors can lead to a rapid decline in trust, particularly if the decisions made by AI contradict a user's intuition or perceived personal control over a situation. For example, when an AI-powered hiring system rejects a candidate who feels highly qualified for a job, it contradicts the candidate's intuition and sense of control over their career prospects. This unexpected error, perceived as different from a human decision, might rapidly diminish trust in AI, especially since people often expect machines to perform flawlessly. This issue is compounded by the fact that people may be less forgiving of mistakes made by

machines than those made by human professionals, as the former are expected to perform flawlessly given the lay understanding of computer programming (Tolmeijer et al., 2022). This dichotomy between appreciation and aversion highlights the complex relationship users have with AI, influencing how they interact with and accept AI-driven decisions and interventions in various fields.

Ethical decision-making has been generally considered unsuitable for full AI autonomy because of the complexity of ethics and moral responsibility (Tolmeijer et al., 2022). The complexity of making ethical judgments and the practical difficulties in training AI to navigate these intricacies suggests the need for a collaborative approach where AI assists but does not replace human judgment (Demaree-Cotton et al., 2022). Implementing ethical principles in AI is further complicated by the inherent ambiguity in ethical dilemmas, differing concepts of fairness, implicit bias present in AI training, and the challenge of maintaining professional responsibility, especially when decisions could lead to negative outcomes or harm to clients (Benzinger et al., 2023; Rodgers et al., 2023; Zhang et al., 2023).

There is ongoing uncertainty about how rehabilitation counselors use AI and the extent to which they trust it to assist in making ethical decisions. According to Tolmeijer et al. (2022), people generally view humans as more morally trustworthy and responsible compared to AI. In their study, participants engaged with both AI and human experts in ethical decision-making tasks. Trust was measured using a multi-dimensional scale that distinguishes between moral trust (perceived moral integrity) and

capacity trust (perceived competence).

The findings revealed that participants rated humans higher in moral trust, indicating a belief that humans possess greater moral integrity and responsibility. Conversely, AI was rated higher in capacity trust, reflecting a perception that AI is more competent or capable in evaluating ethical dilemmas. When these two dimensions were combined into an overall trust score, AI received higher overall trust ratings than humans. This suggests that while participants recognize AI's analytical and problem-solving capabilities (leading to higher capacity trust and overall trust), they still have reservations about AI's moral agency and are hesitant to allow AI to autonomously make ethical decisions without human oversight.

Given these findings, a model that merges human moral oversight with AI's analytical capabilities could be highly effective. In such a model, AI would provide analytical support or make preliminary decisions, which a human counselor could then review and override if necessary. This hybrid approach effectively integrates AI into current ethical decision-making frameworks, enhancing their functionality while preserving essential human oversight. However, such a model has not yet been fully developed within the field of rehabilitation counseling.

Existing ethical decision-making models in rehabilitation counseling, such as the Tarvydas Integrative Decision-Making Model (2012), are grounded in principled reasoning and professional ethics, and have historically offered structured pathways to address ethical challenges (Cottone et al., 2021). These models, which emphasize

critical thinking and adherence to ethical principles such as autonomy, beneficence, fidelity, nonmaleficence, justice, and veracity serve as the foundation for ethical decision-making (Johnston & Tarvydas, 2022). Decision models provide a rigorous process for making ethical judgements, can increase the adherence to ethical codes and provide transparency in the process (McDevitt et al., 2007). The introduction of AI into this domain prompts a reassessment of these traditional models, as well as an assessment of how AI can be integrated to further enhance accuracy and transparency when faced with ethical challenges (Demaree-Cotton et al., 2022).

Despite AI's potential to transform practice, its incorporation into ethical decision-making processes in rehabilitation counseling remains largely uncharted, particularly with minimal explicit ethical oversight. It is likely that rehabilitation counselors are increasingly consulting AI platforms, such as ChatGPT4, to gain insights into ethical dilemmas. ChatGPT4 was created by OpenAI and is a free-to-use chatbot AI system that was launched on November 30, 2022. Based on large language models, it enables users to refine and steer a conversation towards a desired length, format, style, level of detail, and language.¹

This emerging trend of using AI, and specifically ChatGPT4, highlights the necessity for scrutinizing the quality and reliability of AI-generated advice, especially when compared to the seasoned expertise encapsulated in the CRCC's advisory opinions. The absence of research on this comparison reveals a significant gap in our

understanding of AI's implications for ethical decision-making.

This manuscript aims to bridge the knowledge gap by comparing responses from AI, specifically ChatGPT4, against expert advisory opinions from the CRCC on selected ethical scenarios. This comparison seeks to assess AI's viability as a tool for ethical consultation in rehabilitation counseling, examining its congruence with established ethical guidelines and expert opinions (CRCC, 2023). Additionally, it explores the integration of AI into the ethical decision-making process, contemplating how conventional models can be adapted or applied alongside AI technologies to uphold and advance ethical standards in the digital age (Landon et al., 2023; Shaw & Lane, 2008).

By exploring these issues, this study not only sheds light on AI's potential role in ethical deliberation but also prompts a critical discussion on adapting ethical decision-making models to maintain their efficacy in the age of AI. Through this exploration, we aim to contribute to the ongoing discourse on ensuring ethical integrity and professional accountability in rehabilitation counseling as it intersects with the rapidly evolving landscape of artificial intelligence. Our exploration is framed by the following research questions (RQs):

RQ1 How does AI's performance, specifically that of ChatGPT4, compare to expert opinions from the CRCC when responding to selected ethical scenarios in rehabilitation counseling?

RQ2 To what extent does AI, such as

¹ <https://openai.com/index/chatgpt/>

ChatGPT4, align with the established ethical guidelines of the CRCC in its responses to ethical dilemmas in rehabilitation counseling?

Method

This study primarily aimed to evaluate how the responses from the Commission on Rehabilitation Counselor Certification (CRCC) Ethics Committee align or diverge from those generated by ChatGPT4, an advanced language model developed by OpenAI. This comparison aimed to explore the efficacy of ChatGPT4 as a tool for ethical decision-making in rehabilitation counseling, with and without the direct inclusion of the CRCC Code of Professional Ethics as contextual guidance.

The data for this study comprised advisory opinions issued by the CRCC Ethics Committee (referred to as Advisory Opinion #141 [issued June 2019] and #144 [issued August 2020]) and responses generated by ChatGPT4 to identical ethical inquiries. The inquiries focused on ethical dilemmas related to the release of raw data, handling copyrighted test materials, and specific professional actions within vocational rehabilitation counseling. These inquiries were chosen given their relevance to rehabilitation professionals working in forensic or litigation contexts, where ethical considerations and adherence to legal standards are paramount. Two sets of responses from ChatGPT4 were collected for each inquiry:

1. Without CRCC Code Context: ChatGPT4 was first prompted to respond to the ethical inquiries without any explicit reference to the CRCC Code of Professional Ethics, relying on its general understanding

of ethical practices within counseling (i.e., Code was not attached to prompt).

2. With CRCC Code Context: ChatGPT4 was subsequently prompted with the same inquiries but was provided with the full text of the CRCC Code of Professional Ethics as an attachment, aiming to contextualize its responses within the specific standards outlined in the Code.

For detailed reference and transparency in our methodological approach, the complete sequences of prompts and corresponding responses for Advisory Opinion #141 and #144 are documented in Appendix A and Appendix B, respectively. These appendices serve as an integral part of our study, offering readers full access to the primary data that informed our comparative analysis between the responses from the CRCC Ethics Committee and those generated by ChatGPT4. This inclusion is designed to enhance the clarity of our investigation and support a deeper engagement with the ethical scenarios and analytical perspectives presented in our manuscript.

Data Analysis

The study employed an iterative process to compare and contrast the responses (See Appendix C for side-by-side comparison of responses). Each set of ChatGPT4 responses was carefully analyzed against the corresponding advisory opinion from the CRCC Ethics Committee. The analysis focused on identifying thematic consistencies and discrepancies, with particular attention to the interpretation and application of specific ethical standards.

The CRCC Code of Ethics embodies a set of principles and enforceable standards designed to guide CRCs in their professional conduct. Rooted in values such as respecting human dignity, cultural competence, and promoting empowerment, the code emphasizes key ethical principles, including autonomy, beneficence, fidelity, justice, nonmaleficence, and veracity. It addresses diverse areas such as the counseling relationship, confidentiality, advocacy, multicultural considerations, and professional responsibility, ensuring counselors provide services that uphold the welfare and rights of individuals with disabilities within their social and cultural contexts (CRCC, 2023).

The comparison process was iterative, involving multiple rounds of analysis to deepen the understanding of how ChatGPT's responses aligned with or diverged from the Ethics Committee's opinions. This involved:

1. Initial Comparison: The first round of analysis focused on identifying immediate themes and direct references to ethical standards in the responses.
2. Refinement: Subsequent rounds of analysis involved a more nuanced examination of the ethical reasoning, justification, and context provided in the responses. This included assessing the depth of ethical understanding and the application of specific Code standards by ChatGPT4, with and without the direct inclusion of the CRCC Code as a reference.
3. Synthesis: The final stage of analysis synthesized the findings, highlighting key areas of alignment and divergence, and assessing the

potential implications for the use of AI in ethical decision-making within rehabilitation counseling.

The methodological approach of this study provided a systematic framework for assessing the potential of AI, represented by ChatGPT4, as an adjunct tool in the ethical decision-making process in vocational rehabilitation counseling. By comparing ChatGPT4's responses with and without the contextual grounding of the CRCC Code to advisory opinions from the CRCC Ethics Committee, the study offers insights into the capabilities and limitations of AI in navigating complex ethical dilemmas within professional counseling contexts.

Results

Advisory Opinion #141

Is it a breach of Standard H.2.b to release raw data to the CRC/CCRC when there is uncertainty whether this individual has the ability to interpret the raw data?

The responses to the question of whether releasing raw data to a CRC/CCRC under uncertainty of their ability to interpret such data breaches Standard H.2.b of the CRCC Code of Ethics highlight a consensus on the appropriateness of releasing the data, predicated on the qualifications of the recipient. However, the approaches to determining qualification and the emphasis on procedural steps exhibit nuances.

The CRCC Ethics Committee clearly states that a CRC/CCRC is deemed qualified to interpret test data, reflecting a strong trust in the training and credentials of certified professionals. This stance implies a straightforward application of Standard H.2.b, assuming that professionals accredited as CRC/CCRC possess the

requisite skills and knowledge to handle and interpret raw data appropriately.

In contrast, ChatGPT's response without the CRCC Code context emphasizes a more cautious approach. It notes the importance of clarifying the CRC/CCRC's qualifications in the face of uncertainty, suggesting that the determination of qualification should consider the individual's training, experience, and professional credentials. This response acknowledges a presumption of competence for CRC/CCRC professionals but also advises verification in cases of uncertainty. It reflects a nuanced interpretation of Standard H.2.b, balancing the presumption of qualification with a diligence to ensure it explicitly before proceeding with data release.

ChatGPT4's response with the CRCC Code included takes a similar stance to its previous response but with an added emphasis on the ethical obligation to release data responsibly. It reiterates the need for consent or a court order and the requirement that the data be released only to those qualified to interpret it. By advising counselors to take steps to confirm the CRC/CCRC's qualifications, this response aligns closely with the ethical guidelines, reinforcing the importance of safeguarding the client's information by ensuring it is interpreted by adequately qualified professionals.

In comparing these responses, all agree on the ethical permissibility of releasing raw data to CRC/CCRC professionals, assuming their qualifications. The CRCC Ethics Committee's response suggests a default assumption of qualification for CRC/CCRCs, simplifying the decision-making process under Standard H.2.b. In contrast, ChatGPT4's responses, whether

informed by the CRCC Code or not, advocate for a verification process to confirm qualifications, reflecting a more cautious and procedural approach.

Can the copyrighted test materials be released without infringing on the test publishers copyright and without violating Standard H.8?

The CRCC Ethics Committee delineates the issue as primarily legal rather than ethical, suggesting that the act of releasing copyrighted test materials intersects more directly with copyright law than with the ethical standards set forth by the CRCC. Their recommendation to consult with legal counsel encourages an approach that prioritizes legal compliance over ethical deliberation within this specific context, implying that the ethical implications are secondary to, or perhaps encompassed by, the legal ramifications of such actions.

Conversely, ChatGPT4's responses, irrespective of the inclusion of the CRCC Code, emphasize adherence to both legal and ethical obligations. Without the code, ChatGPT4 stresses Standard H.8's directive against reproducing or modifying published tests without publisher permission, suggesting a dual focus on respecting copyright law and maintaining test integrity. It advises contacting the test publisher as a measure to navigate the legal complexities while also adhering to the ethical standard that guards against compromising the security and integrity of tests.

With the CRCC Code provided, ChatGPT4 reiterates this stance, highlighting the necessity of obtaining publisher permission to avoid copyright infringement and ethical violations under Standard H.8. This approach integrates the legal and ethical

considerations into a unified framework, advocating for actions that respect both the legal rights of the copyright holder and the ethical standards governing the profession.

Comparing these perspectives reveals a key divergence in framing the issue: the CRCC Ethics Committee's classification of the matter as primarily legal suggests a distinction between legal advice and ethical guidance, while ChatGPT4's analyses blend these aspects, viewing compliance with copyright law as inherently tied to ethical practice under Standard H.8. Both approaches agree on the importance of legal compliance, but ChatGPT4 extends the discussion to include ethical considerations inherent in adhering to copyright laws, suggesting that legal actions within the context of releasing copyrighted materials are also ethically significant. This difference highlights a broader debate about the intersections between legal obligations and ethical responsibilities in professional practice, with ChatGPT4 advocating for a holistic approach that considers how legal compliance reflects on ethical standards and professional integrity.

Based on the subpoena, can you release raw data and testing material to the attorney/court that issued the subpoena or only to the CRC/CCRC requesting the raw data? How would you respond to these questions?

The CRCC Ethics Committee's response suggests adherence to specific ethical standards (B.2.c and M.1.c) within the context of a subpoena. It emphasizes obtaining client consent, attempting to limit disclosure to minimize harm, and the precedence of legal jurisdiction over ethical codes in cases of conflict. This perspective places a strong emphasis on the counselor's

active role in balancing legal compliance with ethical responsibilities to protect the client's welfare, highlighting a nuanced approach that considers both the ethical and legal dimensions of releasing sensitive information.

ChatGPT4's response, without the CRCC Code, generalizes the obligation to comply with subpoenas while also recognizing the necessity to minimize potential harm or misuse of the data. This perspective suggests that the release should be to the entity specified in the subpoena, likely the attorney or the court, emphasizing compliance with legal, ethical, and contractual obligations. The absence of explicit reference to the CRCC Code means this response focuses more on a broad understanding of ethical practice, suggesting a compliance-first approach tempered by an awareness of the potential impacts on the client.

With the CRCC Code context, ChatGPT4's response aligns closer to the CRCC Ethics Committee's stance by acknowledging the specific standards (notably B.2.c) that guide counselors' actions under subpoena. This response mirrors the committee's emphasis on legal compliance, client consent, and minimizing harm, indicating that the release of information should adhere to the specifications of the subpoena while considering ethical implications. It highlights the complexity of navigating subpoenas within ethical practice, suggesting that adherence to the Code provides a framework for ethical compliance even in legally demanding situations.

Comparing these perspectives reveals a common recognition of the legal obligation to comply with subpoenas, coupled with an ethical commitment to protect client interests. The CRCC Ethics Committee's

response is more detailed in its reference to specific ethical standards, demonstrating a structured approach to ethical decision-making in the face of legal demands. ChatGPT4's responses, both with and without the Code context, acknowledge the necessity of legal compliance while emphasizing the importance of minimizing harm to the client. However, the inclusion of the CRCC Code offers a more grounded ethical rationale, closely mirroring the committee's emphasis on specific ethical standards and client protection strategies. This comparison highlights the nuanced interplay between legal requirements and ethical obligations in the counseling profession, underscoring the importance of a principled approach to handling subpoenas that considers both legal compliance and the ethical welfare of the client.

Advisory Opinion #144

If a CRC/CCRC was hired as a forensic expert, would it be ethical to critique an individual's job search by contacting employers to follow up on an individual's employment application?

The CRCC Ethics Committee clearly delineates the scope of responsibilities for certified rehabilitation counselors working in forensic settings, emphasizing the importance of conducting record reviews, evaluations, and research to provide unbiased and objective expert opinions. By framing the act of contacting employers to follow up on employment applications as outside these boundaries, the Committee highlights a strict interpretation of forensic responsibilities that prioritize impartial evaluation over direct intervention in job search activities. This response indicates a clear boundary of ethical practice, situating the critique of an individual's job search

through employer contact as beyond the ethical scope of a forensic expert's role.

ChatGPT4's response without the CRCC Code context generalizes the ethical considerations around confidentiality, privacy, and autonomy. It posits that contacting employers without explicit consent is generally unethical due to potential breaches of confidentiality and the impact on the individual's privacy and autonomy. This perspective, while not directly referencing specific ethical standards, aligns with broad ethical principles guiding professional behavior, emphasizing the importance of maintaining dignity, confidentiality, and respect for individual rights.

In contrast, ChatGPT4's response with the CRCC Code context specifically references Sections G.1 (Evaluatee Rights) and G.2 (Forensic Competency and Conduct), providing a more nuanced ethical analysis grounded in the CRCC Code. This response highlights the requirement for unbiased and objective opinions based on relevant data and methodologies in forensic roles. It argues that directly contacting employers could compromise the impartiality required of forensic experts and potentially violate confidentiality and privacy rights, marking such actions as likely unethical without explicit authorization or standard forensic practice.

Comparing these perspectives reveals a shared view on the ethical impropriety of a forensic expert contacting employers to critique an individual's job search, emphasizing the protection of evaluatee rights and the maintenance of professional integrity. The CRCC Ethics Committee's response offers a direct interpretation of forensic expert responsibilities, positioning

the critique through employer contact as outside ethical boundaries. ChatGPT4's analyses, both with and without the CRCC Code, emphasize the ethical implications for confidentiality, impartiality, and evaluatee rights, with the latter providing a detailed rationale based on specific ethical standards. This comparison illustrates the comprehensive ethical considerations in forensic evaluations and the importance of adhering to established professional and ethical guidelines to protect the dignity, privacy, and rights of individuals in forensic settings.

If a CRC/CCRC was providing vocational rehabilitation services, would it be ethical to recommend an approved vocational training and then contact the training facility to obtain verbal reports in an effort to monitor the individual's progress?

In addressing the ethics of a CRC/CCRC recommending vocational training and then contacting the training facility to monitor the individual's progress, all responses affirm the ethical acceptability of this practice, contingent upon obtaining the client's informed consent. This uniform stance underscores the significance of client consent in vocational rehabilitation, reflecting a commitment to client autonomy and confidentiality across different interpretative frameworks.

The CRCC Ethics Committee specifies that contacting the training facility for verbal progress reports is appropriate when providing direct rehabilitation counseling services, highlighting the importance of best practices in obtaining client consent beforehand. This response positions consent not just as an ethical requirement but as a best practice, emphasizing the counselor's role in ensuring transparent and client-

centered communication. It underscores the proactive involvement of counselors in supporting client progress while maintaining an ethical commitment to client autonomy and informed decision-making.

ChatGPT4's response without the CRCC Code context also views the recommendation of vocational training and subsequent contact with the training facility as ethical, with informed consent as a critical condition. This perspective aligns with the broader ethical principles of advocacy, support, transparency, and confidentiality in the client-counselor relationship. It stresses the importance of clear communication and agreement with the client regarding the counselor's role in monitoring vocational progress, ensuring that such actions are conducted with the client's welfare in mind.

When informed by the CRCC Code, ChatGPT4's response references specific sections (A.3 on Client Rights and C on Advocacy and Accessibility) to ground the ethical considerations in explicit standards. This detailed approach reinforces the ethical obligation to respect client rights through informed consent and the counselor's responsibility to advocate for the client's welfare. By invoking the Code, the response underscores the integral role of client collaboration and consent in the vocational rehabilitation process, highlighting ethical practice as both a mandate and a facilitator of client empowerment and success.

Comparing these perspectives, the common ethical foundation is the centrality of informed consent in engaging with external entities to support client vocational development. The CRCC Ethics Committee's advice reflects a practical application of ethical standards, framing

consent as a best practice in client engagement. ChatGPT4's responses, whether or not informed by the CRCC Code, stress the importance of consent for ethical and transparent practice, with the response that includes the Code providing a more grounded and detailed ethical rationale. These comparisons elucidate the ethical landscape of vocational rehabilitation, illustrating a consensus on the imperative of client consent and the nuanced ways in which it informs and enhances ethical vocational counseling practices.

Is it ethical for a CRC/CCRC to administer and interpret vocational testing or does that need to be administered and interpreted by a Certified Vocational Evaluator (CVE)?

The responses to the question of whether it is ethical for a CRC/CCRC to administer and interpret vocational testing highlight a consistent principle across the board: the ethical permissibility hinges on the counselor's competence in the specific test or instrument being used. While each response approaches this principle with varying emphasis on ethical standards, professional scope, and competence, they all agree on the foundational requirement of qualification and competence for ethical practice in vocational testing.

The CRCC Ethics Committee specifies that administering and interpreting vocational testing falls within the competence boundaries of a CRC/CCRC, contingent upon the counselor's qualifications and competency with the specific tests or instruments. This response directly ties ethical practice to the professional's proven competence, making a clear distinction that competence, not just certification, determines the appropriateness of administering and interpreting tests. It

emphasizes the importance of self-assessment and acknowledgment of one's professional boundaries in ensuring ethical compliance.

ChatGPT4's response without the CRCC Code context extends this argument by framing the competence to administer and interpret vocational testing within a broader understanding of the counselor's training, scope of practice, and ethical obligations. It suggests that while CRCs/CCRCs may have the foundational skills to conduct such assessments, ethical practice necessitates a careful evaluation of one's abilities against the demands of specific tests. It introduces the concept of involving a Certified Vocational Evaluator (CVE) when the testing complexity exceeds the counselor's expertise, highlighting an ethical approach rooted in competence, informed consent, and client welfare.

With the CRCC Code provided, ChatGPT4's response anchors the discussion in specific standards (H.4 and H.7), offering a more detailed ethical rationale grounded in the Code. This response not only reaffirms the importance of competence but also contextualizes it within the explicit directives of the Code regarding assessment and evaluation. It clarifies that the scope of practice for CRCs/CCRCs includes the administration and interpretation of vocational testing, conditional upon the acquisition of necessary competence, and underscores the absence of an exclusive requirement for CVE involvement. This perspective highlights adherence to professional competence and ethical standards as central to ensuring client welfare and respecting client rights.

Comparing these perspectives reveals a unanimous stance on the ethical

conditionality of CRCs/CCRCs administering and interpreting vocational testing, predicated on competence. The CRCC Ethics Committee's response focuses on the direct link between qualification, competence, and ethical practice. ChatGPT4's discussions, in both cases, explore the practical implications of this principle, stressing the need for self-awareness regarding professional limits and the ethical obligation to prioritize client welfare through competent practice. The inclusion of the CRCC Code provides a structured ethical framework, delineating the professional standards that guide ethical decision-making in vocational testing. These comparisons evaluate the critical role of competence in defining the ethical scope of practice for rehabilitation counselors, emphasizing a unified view that competence, informed by training, experience, and adherence to ethical standards, is key to ethical vocational evaluation.

Discussion

The integration of responses from the CRCC Ethics Committee and those generated by ChatGPT4, with and without the CRCC Code of Ethics as context, into the ethical deliberation process presents a nuanced examination of artificial intelligence's potential role in rehabilitation counseling. This analysis, spanning multiple hypothetical but realistic ethical scenarios, revealed the alignment between AI-generated advice and professional ethical standards, as well as the disparities that emerge in the depth and breadth of these standards. Through this comparative lens, we explore the feasibility and limitations of leveraging AI, such as ChatGPT4, as a tool for ethical decision-making, while also

addressing the inherent skepticism and caution warranted in its use.

Comparative Insights Across Ethical Dilemmas

ChatGPT4's ability to generate responses aligned with the CRCC Ethics Committee's guidelines, particularly when informed by the CRCC Code, highlights its potential as a tool for enhancing ethical awareness and decision-making in rehabilitation counseling (Dang et al., 2022). This alignment indicates the utility of AI as a preliminary ethical consultation resource, offering valuable insights that could support the ethical education of professionals and assist in the early stages of ethical deliberation (Benzinger et al., 2023; Demaree-Cotton et al., 2022).

However, the depth and nuance present in the Ethics Committee's interpretations emphasize the limitations of AI in capturing the complex interplay of ethical considerations within professional practice. Despite ChatGPT4's capacity to adhere to established ethical principles, its responses sometimes fall short of the contextual understanding and the ethical reasoning characteristics of human experts. This gap stresses the critical role of human oversight in ethical decision-making, ensuring that the subtleties of professional ethics, shaped by deep expertise and real-world complexities, are fully considered and addressed.

For instance, concerning Advisory Opinion #141 on the release of raw data, the Ethics Committee viewed CRC/CCRC professionals as qualified to handle such data, suggesting its appropriateness for release. In contrast, ChatGPT4, incorporating the CRCC Code of Ethics into its response, advocated for a more cautious

approach, emphasizing the necessity to confirm qualifications under specific legal and ethical conditions before releasing data. Similarly, regarding the release of copyrighted test materials, the Committee advised seeking legal counsel, focusing on the practicalities of compliance, whereas ChatGPT4 underscored obtaining explicit permissions, demonstrating a strict adherence to ethical standards. These examples highlight AI's tendency to strictly interpret written standards without the nuanced judgment and practical wisdom that human experts apply, reflecting the essential need for human oversight in interpreting and applying ethical guidelines within professional contexts.

The Potential of AI in Ethical Decision-Making

Exploring AI's capabilities, especially through ChatGPT4, highlights its promising role as a preliminary resource for ethical consultation in rehabilitation counseling. By swiftly providing access to ethical considerations and guidelines, we believe AI can significantly enhance the early stages of ethical deliberation when used alongside established decision models. This immediacy in accessing ethical insights allows professionals to establish a foundational understanding from which more nuanced and comprehensive ethical reasoning can be developed.

The application of AI as an educational tool in ethical education offers potential opportunities for enhancing the training of rehabilitation counselors. AI can facilitate engagement with a diverse array of ethical viewpoints, encouraging a deeper and more reflective examination of how these principles apply in various professional scenarios. For example, in a course on

counseling ethics, educators could use AI to simulate complex ethical dilemmas, allowing students to interact with the AI to explore potential solutions and compare their process with established ethical-decision making models.

Skepticism and Caution in Ethical AI Use

The analysis stresses the limitations of AI, such as ChatGPT4, in the realm of ethical decision-making, particularly concerning its inability to replicate the depth of moral reasoning, empathy, and contextual understanding that human professionals bring to such deliberations. The absence of emotional intelligence and moral intuition in AI's algorithmic processes points to a fundamental gap in its capacity to navigate the complex, nuanced ethical landscapes that characterize vocational rehabilitation counseling. This gap not only suggests caution in the use of AI for ethical guidance but also highlights the indispensable role of human oversight in ensuring that ethical decisions are informed by a depth of understanding and sensitivity that AI currently cannot provide.

Without adequate human oversight, there is a real risk that AI might make decisions that are overly rigid, misaligned with human values, or insensitive to contextual subtleties, potentially leading to outcomes that could erode trust in professional practices and compromise client care. Such scenarios emphasize the need for a collaborative approach where AI supports human decision-makers rather than replacing them, ensuring ethical standards are upheld through a balanced integration of technological assistance and professional judgment.

CRC's that work alone or are reticent to seek advice on ethical dilemmas may turn to AI such as Chat GPT4. This examination calls for a critical and cautious approach to incorporating AI-generated advice into the ethical decision-making process. We advocate for professionals to actively scrutinize and contextualize AI-generated insights within the broader spectrum of established ethical standards, professional codes, and their own seasoned ethical judgment. Such a critical engagement ensures that AI's contributions are appropriately weighed and integrated, reinforcing the primacy of human-led ethical analysis and decision-making. Ethical judgements may be more challenging for AI because ethics are based upon human judgement and can be variable due to culture and context (Demaree-Cotton et al., 2022). Using the internet to train AI, such as ChatGPT4, to make values-based judgment has also resulted in a reflection of the persistent gender, race and religion-based biases which perpetuate stereotypes, discrimination, and prejudice (Vaccino-Salvadore, 2023). The suggested balanced approach is important for CRC's and counselor educators as it can help mitigate the risks of overreliance on AI, maintaining the integrity and depth of ethical deliberation in rehabilitation counseling.

Currently, there is a lack of data on how widely AI is utilized in rehabilitation counseling. However, according to latest available data, there are at least 180.5 million users of ChatGPT4 worldwide, meaning its general use is impressively prevalent.² Future research should aim to better quantify AI adoption in this field and examine rehabilitation counselors' attitudes

towards its application. Furthermore, targeted studies in specific practice areas like life planning and medical records review could yield valuable insights and recommendations for integrating AI effectively. This research will help clarify the potential roles AI can play in enhancing rehabilitation counseling practices.

The potential of AI to improve the accuracy of ethical decision-making will likely be a subject of ongoing debate. While AI systems trained on historical decisions from ethics committees might not surpass human decision-making capabilities, they could potentially replicate them. To enhance the quality of AI-generated decisions, advanced training strategies could incorporate ethical judgments from various committees (Demaree-Cotton et al., 2022). AI may be adept at learning from straightforward ethical scenarios, but its ability to manage more nuanced or complex cases remains uncertain. This is especially crucial when ethical deliberations involve considerations of potential harm, benefits, intentions, distributive justice, and social context (Demaree-Cotton et al., 2022; Earp et al., 2021). Further research involving complex ethical scenarios in rehabilitation counseling is essential to ascertain the limits of AI's effectiveness in collaborative decision-making contexts.

Limitations

This study, while informative, possesses several inherent limitations that merit consideration. Firstly, a significant limitation is the inherent bias and variability in the programming of AI technologies. The responses generated by ChatGPT4 are influenced by the data it was trained on,

² <https://explodingtopics.com/blog/chatgpt-users>

which may not comprehensively cover the breadth of ethical scenarios encountered in rehabilitation counseling. Moreover, this training data might not fully represent the diversity of ethical challenges or the depth of reasoning provided in the CRCC's advisory opinions, potentially leading to gaps in AI's ethical reasoning.

Additionally, this study focused solely on comparing ChatGPT4's responses to the CRCC's advisory opinions, without considering other AI platforms or ethical frameworks that might be used in rehabilitation counseling. This narrow focus limits the generalizability of the findings to other AI tools and contexts.

Another limitation is the dynamic nature of AI learning. AI models like ChatGPT4 evolve with updates and training on new data. Thus, the study's findings may vary over time as the model is updated. Regular reevaluation of AI capabilities as models evolve would be necessary to maintain the relevance and accuracy of conclusions. Additionally, the reproducibility and consistency of AI responses can be a concern. ChatGPT4's responses can vary slightly each time a prompt is presented, even under controlled conditions. Documenting and analyzing the variability in responses to identical prompts could provide deeper insights into the consistency and reliability of AI in ethical consultations.

While the study endeavors to document the responses and analyze them methodically, the interpretation of these responses could be subject to researcher bias. The analysis and conclusions drawn may reflect the researchers' perspectives or inherent biases, which could influence the interpretation of AI and human responses in ethical scenarios.

Conclusion

This comprehensive analysis highlights both the potential benefits and inherent limitations of using AI as a supplementary tool in ethical decision-making within rehabilitation counseling. While AI, exemplified by ChatGPT4, can provide valuable initial insights and serve as an educational resource, it cannot substitute the deep, nuanced ethical judgment and decision-making capacity of human professionals. Moving forward, fostering a balanced and critical approach to AI's use in ethical deliberation will be crucial in maximizing its benefits while safeguarding against the pitfalls of overreliance on artificial intelligence for ethical guidance.

References

- Benzinger, L., Ursin, F., Wolf-Tilo, B., Kacprowski, T., & Salloch, S. (2023). Should artificial intelligence be used to support clinical ethical decision-making? A systematic review of reasons. *BMC Medical Ethics*, 24(48), 1-9. <https://doi.org/10.1186/s12910-023-00929-6>
- Bourgeois, P., Allison, A., & Skerritt, C., (2024). Harnessing artificial intelligence for enhanced life care planning: Innovations, challenges, and ethical considerations. *Journal of Life Care Planning*, 22(1), 25-37.
- Commission on Rehabilitation Counselor Certification. (2023). Advisory opinions from Ethic Committee Minutes 1996 - 2022. <https://crrccertification.com/code-of-ethics-4/advisory-opinions/>
- Commission on Rehabilitation Counselor Certification. (2023). *Code of professional ethics for rehabilitation counselors*.

- <https://crrcertification.com/code-of-ethics-4/>
- Cottone, R. R., Tarvydas, V. M., & Hartley, M. T. (2021). *Ethics and decision making in counseling and psychotherapy*. Springer.
- Dang, H., Mecke, L., Lehmann, F., Goller, S., & Buschek, D. (2022). How to prompt? Opportunities and challenges of zero-and few-shot learning for human-AI interaction in creative applications of generative models. <https://doi.org/10.48550/arXiv.2209.01390>
- Demaree-Cotton, J., Earp, B. D., & Savulescu, J. (2022). How to Use AI Ethically for Ethical Decision-Making, *The American Journal of Bioethics*, 22(7), 1-3. <https://doi.org/10.1080/15265161.2022968.2075>
- Earp, B. D., McLoughlin, K. L., Monrad, J. T., Clark, M. S., & Crockett, M. J. (2021). How social relationships shape moral wrongness judgments. *Nature Communications*, 12(1), 5776. <https://doi.org/10.1038/s41467-021-26067-4>
- Landon, T. J., Hill, J. C., Froehlich, R. J., & Shlemon, P. (2023). Embracing the future: Updating and revising the Code of Professional Ethics for Rehabilitation Counselors. *Rehabilitation Counseling Bulletin*, 66(4), 227-230. <https://doi.org/10.1177/00343552221146166>
- McDevitt, R., Giapponi, C., & Tromley, C. (2007). A model of ethical decision making: The integration of process and content. *Journal of Business ethics*, 73, 219-229.
- <http://www.jstor.org/stable/25075414>
- Hartley, M. T., & Cartwright, B. Y. (2016). A survey of current and projected ethical dilemmas of rehabilitation counselors. *Rehabilitation Research, Policy, and Education*, 30(1), 32– 47. <https://doi.org/10.1891/2168-6653.30.1.32>
- Hill, J. C., Stokes, L. E., Froehlich, R. J., Emmanuel, D., Landon, T. J., & Hicks, S., B. (2023). Ethical dilemmas: Current and projected concerns reported by certified rehabilitation counselors. *Rehabilitation Counseling Bulletin*, 66(4), 231-243. <https://doi.org/10.1177/00343552221146159>
- Horowitz, M. C., Kahn, L., McDonald, J., & Schneider, J. (2024). Adopting AI: How familiarity breeds both trust and contempt. *AI & Society*, 39, 1721-1735. <https://doi.org/10.1007/s00146-023-01666-5>
- Rodgers, W., Murray, J., Stefanidis, Degbey, W., & Tarba, S. (2023). An artificial intelligence algorithmic approach to ethical decision-making in human resource management processes. *Human Resource Management Review*, 33(1). <https://doi.org/10.1016/j.hrmr.2022.100925>
- Shaw, L. R., & Lane, F. J. (2008). Content analysis of the advisory opinion archive of the Commission on Rehabilitation Counselor Certification. *Rehabilitation Counseling Bulletin*, 51(3), 170-176. <https://doi.org/10.1177/0034355207311314>
- Shin, D. (2021). The effects of explainability and causability on

- perception, trust, and acceptance: Implications for explainable AI. *International Journal of Human-Computer Studies*, 146. <https://doi.org/10.1016/j.ijhcs.2020.102551>
- Tarvydas, V. M. (2012). Ethics and ethics decision making. In D. R. Maki & V. M. Tarvydas (Eds.), *The professional practice of rehabilitation counseling* (pp. 339–370). Springer.
- Tarvydas, V. T., & Johnston, S. P. (2022). Ethics and ethics decision making. In V. T. Tarvydas & M. T. Hartley (Eds.), *The professional practice of rehabilitation counseling* (3rd ed., pp. 355-384). Springer.
- Tolmeijer, S., Christen, M., Kandul, S., Kneer, M., & Bernstein, A. (2022, April). Capable but amoral? Comparing AI and human expert collaboration in ethical decision making. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (pp. 1-17).
- Travaini, G. V., Pacchioni, F., Bellumore, S., Bosia, M., & De Micco, F. (2022). Machine learning and criminal justice: A systematic review of advanced methodology for recidivism risk prediction. *International Journal of Environmental Research and Public Health*, 19(17), 10594. <https://doi.org/10.3390/ijerph191710594>
- Vaccino-Salvadore S. (2023). Exploring the Ethical Dimensions of Using ChatGPT in Language Learning and Beyond. *Languages*. 8(3):191. <https://doi.org/10.3390/languages8030191>
- Zamfirescu-Pereira, J. D., Wong, R. Y., Hartmann, B., & Yang, Q. (2023, April). Why Johnny can't prompt: how non-AI experts try (and fail) to design LLM prompts. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (pp. 1-21).
- Zhang, G., Chong, L., Kotovsky, K., & Cagan, J. (2023). Trust in an AI versus a human teammate: The effects of teammate identity and performance on human-AI cooperation. *Computers in Human Behavior*, 139. <https://doi.org/10.1016/j.chb.2022.107536>

Appendix A

ChatGPT Prompt Sequence for Advisory Opinion #141

User Prompt: I am certified as a rehabilitation counselor. The certifying body, CRCC, provides ethics opinions related to issues experienced in practice by rehabilitation counselors.

Here is the language from their website used to describe advisory opinions:

ADVISORY OPINIONS THINKING ABOUT SEEKING ADVISORY OPINIONS? The CRCC Ethics Committee recommends that you consult with other certified rehabilitation counselors and colleagues who are knowledgeable about ethics before filing a formal request. Not only does this honor the intent of the CRCC Code of Professional Ethics for Certified Rehabilitation Counselors, it also provides an opportunity for you to find a resolution to your situation.

GUIDELINES FOR REQUESTING AN ADVISORY OPINION FROM THE CRCC ETHICS COMMITTEE

1. If you find the issues you have can't be resolved by consulting with your peers, you may request advisory opinions from the CRCC Ethics Committee.
2. Follow the guidelines in the following link to request opinions: [Guidelines for Requesting an Advisory Opinion](#)
3. Because the opinions rendered are based on limited and unverified information, they should be regarded only as general educational assistance, and not as specific direction in any particular instance.

NOTE: Advisory Opinion requests should not be filed if there is reason to believe that a violation of the code has occurred. Those attempting to determine if alleged behavior violates the code may receive a response to a request for an advisory opinion that may later appear to contradict a ruling made if a complaint is actually filed. Advisory opinions do not allow for full disclosure of all available information, and thus, an opinion rendered may appear incongruous with a later action, which will always be based on a complete review of the facts of the case.

Review the scenario and provide advisory opinions to the following questions:

Advisory Opinion #141 (CRCC, June, 2019)

The Ethics Committee considered a request addressing a workers' compensation case where a certified rehabilitation counselor had been asked to provide raw test data in addition to the test scores and interpretations that had already provided in their report. It was noted that the individual requesting the raw test data is a CRC/CCRC. Further it was noted the claimant signed a release form giving the certified rehabilitation counselor the authority to release the testing material and report to the client's attorney. Thereafter, the certified rehabilitation counselor was served with a subpoena that required the release of all records, testing material, and raw data used in the evaluation. The certified rehabilitation counselor is questioning the following:

1. Is it a breach of Standard H.2.b to release raw data to the CRC/CCRC when there is uncertainty whether this individual has the ability to interpret the raw data?
2. Can the copyrighted test materials be released without infringing on the test publishers copyright and without violating Standard H.8?
3. Based on the subpoena, can you release raw data and testing material to the attorney/court that issued the subpoena or only to the CRC/CCRC requesting the raw data? How would you respond to these questions?

For your reference, here is Standard H.2.b.:

b. RELEASE OF RAW DATA TO QUALIFIED PROFESSIONALS. When allowed by copyright law, CRCs/CCRCs release raw data (e.g., worksheets, answer sheets, notes) in which clients are identified only with the consent of clients or their legal representatives or by court order. Such raw data is released only to professionals recognized as qualified to interpret the data.

Here is section H.8.:

H.8. TEST/INSTRUMENT SECURITY CRCs/CCRCs maintain the integrity and security of tests/instruments consistent with legal and contractual obligations. CRCs/CCRCs do not appropriate, reproduce, or modify published tests/instruments or parts thereof without the acknowledgment and permission of the publisher.

ChatGPT Response (March 15, 2024): Given the scenario and the ethical standards provided by the Commission on Rehabilitation Counselor Certification (CRCC), here are the responses to the questions posed:

1. Release of Raw Data to the CRC/CCRC under Standard H.2.b.

According to Standard H.2.b, raw data may be released to qualified professionals if copyright law permits, with the consent of the client or their legal representative, or by court order. The standard specifies that such data should be released only to professionals recognized as qualified to interpret the data. If there is uncertainty about the CRC/CCRC's ability to interpret the raw data, it is crucial to first clarify whether they are indeed qualified. The qualification to interpret raw data typically depends on their training, experience, and professional credentials. If the individual requesting the data is a CRC/CCRC, it is reasonable to assume they have the necessary qualifications unless there is specific evidence to the contrary. Therefore, it may not be a breach of Standard H.2.b to release raw data, especially considering the claimant has signed a release form and a subpoena has been issued, provided the CRC/CCRC is deemed qualified.

2. Release of Copyrighted Test Materials under Standard H.8.

Standard H.8 addresses the security and integrity of tests and instruments, noting that CRCs/CCRCs should not reproduce, appropriate, or modify published tests or their parts without permission from the publisher. The release of copyrighted test materials to another party, such as another CRC/CCRC or an attorney/court, would need to comply with copyright law and any agreements with the test publisher. If the subpoena requires

the release of such materials, it's advisable to contact the test publisher to explain the situation and seek guidance or permission to comply with the subpoena without infringing on copyright. This action also respects the intent of Standard H.8 by maintaining test integrity and security while adhering to legal obligations.

3. Release of Raw Data and Testing Material to Attorney/Court Based on the Subpoena.

When served with a subpoena that demands the release of all records, testing materials, and raw data used in the evaluation, compliance with the subpoena is generally required unless a legal exception applies or a protective order is obtained. The release should be made to the entity specified in the subpoena, which in this case is likely the attorney or the court. It is important to ensure that any release of information complies with applicable laws, ethical standards, and any relevant contractual obligations with test publishers. In this situation, releasing the requested information to the attorney or court would not be a breach of ethics, provided all steps are taken to minimize potential harm or misuse of the data and to adhere to copyright laws as well as standards H.2.b and H.8.

In summary, the certified rehabilitation counselor should:

- Verify the qualifications of the CRC/CCRC requesting the raw data.
- Consult with the test publisher regarding the release of copyrighted materials under the conditions of the subpoena.
- Comply with the subpoena by releasing the information to the specified party, ensuring that all ethical and legal guidelines are followed.

User Prompt: Try again. This time reference the CRCC Code of Professional Ethics (Code) in your response to these three questions (full-text Code included as attachment in prompt).

1. Is it a breach of Standard H.2.b to release raw data to the CRC/CCRC when there is uncertainty whether this individual has the ability to interpret the raw data?
2. Can the copyrighted test materials be released without infringing on the test publishers copyright and without violating Standard H.8?
3. Based on the subpoena, can you release raw data and testing material to the attorney/court that issued the subpoena or only to the CRC/CCRC requesting the raw data? How would you respond to these questions?

ChatGPT Response (March 15, 2024): Given the detailed information provided in the CRCC Code of Professional Ethics and the specific scenario presented, here's how to address the three questions using the relevant standards:

1. Is it a breach of Standard H.2.b to release raw data to the CRC/CCRC when there is uncertainty whether this individual has the ability to interpret the raw data?

According to Standard H.2.b., raw data may be released to other professionals if it is done with the consent of the client or their legal representatives, or by court order, and only to professionals recognized as qualified to interpret the data. If there is uncertainty regarding the CRC/CCRC's ability to interpret the raw data, the counselor should take steps to confirm the qualifications of the CRC/CCRC to ensure they meet the criteria of being able to interpret the data. If the CRC/CCRC is recognized as qualified, it would not breach Standard H.2.b to release the raw data, especially if there is consent or a court order. The key factor is ensuring the receiving professional is qualified, which aligns with the ethical obligation to release data responsibly.

2. Can the copyrighted test materials be released without infringing on the test publishers' copyright and without violating Standard H.8?

Standard H.8 emphasizes maintaining the integrity and security of tests/instruments consistent with legal and contractual obligations. Releasing copyrighted test materials without permission from the publisher could potentially infringe on copyright laws and violate this standard. Therefore, it is crucial to contact the test publisher for permission or guidance when responding to a subpoena that requests the release of such materials. This action would demonstrate an effort to comply with copyright laws and respect the security of the test instruments, aligning with the ethical standards set forth in H.8. If permission or a mechanism for lawful release under subpoena is obtained, then releasing the materials would not infringe on the publisher's copyright or violate Standard H.8.

3. Based on the subpoena, can you release raw data and testing material to the attorney/court that issued the subpoena or only to the CRC/CCRC requesting the raw data?

When served with a subpoena requiring the release of records, testing materials, and raw data, the counselor is generally obligated to comply, as per legal standards and ethical guidelines. The release should be made to the entity specified in the subpoena, which could be the attorney or the court. This does not necessarily restrict the counselor to releasing information only to the CRC/CCRC requesting the raw data. Standard B.2.c of the Code of Ethics suggests that compliance with a subpoena or court order is required, implying that the counselor should release the requested materials to the attorney or court that issued the subpoena. However, it is crucial to minimize the potential harm this might cause to the client-counselor relationship and to ensure that only the necessary information is disclosed, adhering to principles of confidentiality and ethical responsibility.

These responses are crafted with the intention to uphold the ethical standards as outlined in the CRCC Code of Professional Ethics, ensuring that actions taken in response to the scenario are both legally sound and ethically responsible.

Appendix B

ChatGPT Prompt Sequence for Advisory Opinion #144

User Prompt: I am certified as a rehabilitation counselor. The certifying body, CRCC, provides ethics opinions related to issues experienced in practice by rehabilitation counselors.

Here is the language from their website used to describe advisory opinions:

ADVISORY OPINIONS THINKING ABOUT SEEKING ADVISORY OPINIONS? The CRCC Ethics Committee recommends that you consult with other certified rehabilitation counselors and colleagues who are knowledgeable about ethics before filing a formal request. Not only does this honor the intent of the CRCC Code of Professional Ethics for Certified Rehabilitation Counselors, it also provides an opportunity for you to find a resolution to your situation.

GUIDELINES FOR REQUESTING AN ADVISORY OPINION FROM THE CRCC ETHICS COMMITTEE

1. If you find the issues you have can't be resolved by consulting with your peers, you may request advisory opinions from the CRCC Ethics Committee.
2. Follow the guidelines in the following link to request opinions: [Guidelines for Requesting an Advisory Opinion](#)
3. Because the opinions rendered are based on limited and unverified information, they should be regarded only as general educational assistance, and not as specific direction in any particular instance.

NOTE: Advisory Opinion requests should not be filed if there is reason to believe that a violation of the Code has occurred. Those attempting to determine if alleged behavior violates the Code may receive a response to a request for an advisory opinion that may later appear to contradict a ruling made if a complaint is actually filed. Advisory opinions do not allow for full disclosure of all available information, and thus, an opinion rendered may appear incongruous with a later action, which will always be based on a complete review of the facts of the case.

Review the scenario and provide advisory opinions to the following questions:

The Ethics Committee considered a request for an Advisory Opinion on several matters.

The questions posed to the Ethics Committee are:

1. If a CRC/CCRC was hired as a forensic expert, would it be ethical to critique an individual's job search by contacting employers to follow up on an individual's employment application?

2. If a CRC/CCRC was providing vocational rehabilitation services, would it be ethical to recommend an approved vocational training and then contact the training facility to obtain verbal reports in an effort to monitor the individual's progress?
3. Is it ethical for a CRC/CCRC to administer and interpret vocational testing or does that need to be administered and interpreted by a Certified Vocational Evaluator (CVE)?

ChatGPT Response (March 14, 2024): In considering the ethical implications of the scenarios presented, it is crucial to refer to the CRCC Code of Professional Ethics for Certified Rehabilitation Counselors (CRCs) and Certified Clinical Rehabilitation Counselors (CCRCs) to guide the analysis. The following responses are grounded in general ethical principles relevant to the practice of rehabilitation counseling:

1. Contacting Employers to Follow Up on an Individual's Employment Application as a Forensic Expert:

It is generally unethical for a CRC/CCRC serving as a forensic expert to directly contact employers to follow up on an individual's employment application without explicit consent. Such actions could breach confidentiality and potentially impact the individual's privacy and autonomy. The role of a forensic expert typically involves evaluating information impartially, without directly intervening in the job search process. It's important that any actions taken by a forensic expert do not compromise the dignity or privacy of the individual involved and adhere to the principles of confidentiality, informed consent, and respect for individual rights as outlined in the CRCC Code.

2. Recommending Vocational Training and Contacting the Training Facility:

Recommending an approved vocational training program and subsequently contacting the training facility to obtain verbal reports to monitor the individual's progress could be considered ethical, provided that informed consent has been obtained from the individual. This action aligns with the counselor's responsibility to advocate for and support the client's vocational development and success, as long as it is done transparently, with the individual's consent, and in a manner that protects their confidentiality. It is essential that the individual is aware of and agrees to this level of involvement from the counselor, understanding how it benefits their vocational rehabilitation process.

3. Administering and Interpreting Vocational Testing:

CRCs/CCRCs are trained and certified to provide a broad range of rehabilitation counseling services, which can include the administration and interpretation of vocational testing, provided they have the appropriate training, competence, and scope of practice to do so. The ethical obligation is to ensure that any assessment tools are used competently and appropriately, with consideration for the individual's needs, rights, and welfare. If the complexity of the testing goes beyond the counselor's level of competence, it would be appropriate, and ethical, to involve a Certified Vocational Evaluator (CVE) or another professional with specific expertise in vocational evaluation. The key ethical

considerations include competence, informed consent, and acting in the best interests of the individual being served.

These responses are guided by general ethical principles and should be considered within the specific context of each situation, including applicable laws, regulations, and the detailed provisions of the CRCC Code of Professional Ethics. Counselors are encouraged to engage in ethical deliberation, seek supervision or consultation, and consider the individual circumstances and needs of those they serve in determining the most ethical course of action.

User Prompt: Try again. This time reference the CRCC Code of Professional Ethics (Code) in your response to these three questions (full-text Code included as attachment in prompt).

1. If a CRC/CCRC was hired as a forensic expert, would it be ethical to critique an individual's job search by contacting employers to follow up on an individual's employment application?
2. If a CRC/CCRC was providing vocational rehabilitation services, would it be ethical to recommend an approved vocational training and then contact the training facility to obtain verbal reports in an effort to monitor the individual's progress?
3. Is it ethical for a CRC/CCRC to administer and interpret vocational testing or does that need to be administered and interpreted by a Certified Vocational Evaluator (CVE)?

ChatGPT Response (March 14, 2024): Given the detailed context of the CRCC Code of Professional Ethics and the specific scenarios you've asked about, I will provide answers grounded in the relevant sections of the Code:

1. Critiquing an individual's job search by contacting employers as a forensic expert:

This scenario needs to be considered in light of Sections G.1 (Evaluatee Rights) and G.2 (Forensic Competency and Conduct). Forensic roles require unbiased and objective opinions based on relevant data and methodologies appropriate to the service being provided, which may include evaluation, research, and/or review of records. Contacting employers directly to critique an individual's job search could compromise the impartiality and objectivity required in a forensic setting. It could also potentially violate the evaluatee's rights to confidentiality and privacy unless explicitly authorized within the forensic evaluation process. Therefore, without specific authorization and unless it is a standard practice within the forensic evaluation context, this action would likely be considered unethical.

2. Recommending vocational training and contacting the facility for progress reports:

Under Section A.3 (Client Rights), particularly A.3.b (Informed Consent), and Section C (Advocacy and Accessibility), CRCs/CCRCs have an ethical obligation to respect the rights of clients to make informed decisions regarding their rehabilitation process.

Recommending approved vocational training and then contacting the training facility for progress reports is ethical, provided that informed consent has been obtained from the individual. This approach aligns with the Code's emphasis on collaboration with clients in their rehabilitation process, advocating for the client's welfare, and ensuring access to necessary services while respecting client confidentiality and privacy.

3. Administering and interpreting vocational testing by CRC/CCRCs:

According to Section H (Assessment and Evaluation), specifically standards H.4 (Competence to Use and Interpret Tests/Instruments) and H.7 (Test/Instrument Scoring and Interpretation), CRCs/CCRCs are expected to only use and interpret assessments for which they are competent, based on their education, training, and professional experience. Administering and interpreting vocational testing is within the scope of practice for CRCs/CCRCs if they have acquired the necessary competence. There is no explicit requirement that these tasks must be performed by a Certified Vocational Evaluator (CVE) alone. However, CRCs/CCRCs must ensure their actions are consistent with the Code's directives on maintaining professional competence, respecting client rights, and ensuring the welfare of those served.

In summary, the ethical considerations for each scenario are guided by principles of objectivity, informed consent, client welfare, competency, and privacy as outlined in the CRCC Code of Professional Ethics. Actions taken in forensic roles, client advocacy, and assessment must align with these principles to ensure ethical practice.

Appendix C

Side by Side Comparison of Responses to Advisory Opinion 141:

Question	CRCC Advisory Opinion #141	ChatGPT4	ChatGPT4 with CRCC COE included in Prompt
Is it a breach of Standard H.2.b to release raw data to the CRC/CCRC when there is uncertainty whether this individual has the ability to interpret the raw data?	The Committee responded that a CRC/CCRC would be considered qualified to interpret test data and therefore it would be appropriate to release the raw data.	According to Standard H.2.b, raw data may be released to qualified professionals if copyright law permits, with the consent of the client or their legal representative, or by court order. The standard specifies that such data should be released only to professionals recognized as qualified to interpret the data. If there is uncertainty	According to Standard H.2.b., raw data may be released to other professionals if it is done with the consent of the client or their legal representatives, or by court order, and only to professionals recognized as

		<p>about the CRC/CCRC's ability to interpret the raw data, it is crucial to first clarify whether they are indeed qualified. The qualification to interpret raw data typically depends on their training, experience, and professional credentials. If the individual requesting the data is a CRC/CCRC, it is reasonable to assume they have the necessary qualifications unless there is specific evidence to the contrary. Therefore, it may not be a breach of Standard H.2.b to release raw data, especially considering the claimant has signed a release form and a subpoena has been issued, provided the CRC/CCRC is deemed qualified.</p>	<p>qualified to interpret the data. If there is uncertainty regarding the CRC/CCRC's ability to interpret the raw data, the counselor should take steps to confirm the qualifications of the CRC/CCRC to ensure they meet the criteria of being able to interpret the data. If the CRC/CCRC is recognized as qualified, it would not breach Standard H.2.b to release the raw data, especially if there is consent or a court order. The key factor is ensuring the receiving professional is qualified, which aligns with the ethical obligation to release data responsibly.</p>
<p>Can the copyrighted test materials be</p>	<p>The Committee responded the release of copyrighted test</p>	<p>Standard H.8 addresses the security and integrity of tests and instruments,</p>	<p>Standard H.8 emphasizes maintaining the</p>

<p>released without infringing on the test publisher's copyright and without violating Standard H.8?</p>	<p>materials would be considered a legal issue and not ethical, therefore the Committee recommends the certified rehabilitation counselor consult with legal counselor on this matter.</p>	<p>noting that CRCs/CCRCs should not reproduce, appropriate, or modify published tests or their parts without permission from the publisher. The release of copyrighted test materials to another party, such as another CRC/CCRC or an attorney/court, would need to comply with copyright law and any agreements with the test publisher. If the subpoena requires the release of such materials, it's advisable to contact the test publisher to explain the situation and seek guidance or permission to comply with the subpoena without infringing on copyright. This action also respects the intent of Standard H.8 by maintaining test integrity and security while adhering to legal obligations.</p>	<p>integrity and security of tests/instruments consistent with legal and contractual obligations. Releasing copyrighted test materials without permission from the publisher could potentially infringe on copyright laws and violate this standard. Therefore, it is crucial to contact the test publisher for permission or guidance when responding to a subpoena that requests the release of such materials. This action would demonstrate an effort to comply with copyright laws and respect the security of the test instruments, aligning with the ethical standards set forth in H.8. If permission or a mechanism for</p>
---	--	---	--

			lawful release under subpoena is obtained, then releasing the materials would not infringe on the publisher's copyright or violate Standard H.8.
Based on the subpoena, can you release raw data and testing material to the attorney/court that issued the subpoena or only to the CRC/CCRC requesting the raw data?	The Committee responded that in accordance with Standard B.2.c, when subpoenaed to release information without permission from the client, certified rehabilitation counselors obtain written consent from the client, take steps to prohibit the disclosure, or have it limited as narrowly as possible due to potential harm to the client. Further the Committee noted Standard M.1.c which states the certified rehabilitation counselors obey the laws of the legal jurisdiction in which they practice unless there is a conflict with the Code. If conflicts cannot be resolved, certified rehabilitation counselors may adhere to the	When served with a subpoena that demands the release of all records, testing materials, and raw data used in the evaluation, compliance with the subpoena is generally required unless a legal exception applies or a protective order is obtained. The release should be made to the entity specified in the subpoena, which in this case is likely the attorney or the court. It is important to ensure that any release of information complies with applicable laws, ethical standards, and any relevant contractual obligations with test publishers. In this situation, releasing the requested information to the attorney or court would not be a breach of ethics, provided all steps are taken to minimize potential harm or misuse of the data and to adhere to copyright laws as well as standards H.2.b and H.8.	When served with a subpoena requiring the release of records, testing materials, and raw data, the counselor is generally obligated to comply, as per legal standards and ethical guidelines. The release should be made to the entity specified in the subpoena, which could be the attorney or the court. This does not necessarily restrict the counselor to releasing information only to the CRC/CCRC requesting the raw data. Standard B.2.c of the Code of

	requirements of the law.		<p>Ethics suggests that compliance with a subpoena or court order is required, implying that the counselor should release the requested materials to the attorney or court that issued the subpoena.</p> <p>However, it is crucial to minimize the potential harm this might cause to the client-counselor relationship and to ensure that only the necessary information is disclosed, adhering to principles of confidentiality and ethical responsibility.</p>
--	--------------------------	--	---

Appendix C

Side by Side Comparison of Responses to Advisory Opinion 144:

Question	CRCC Advisory Opinion #144	ChatGPT4	ChatGPT4 with CRCC COE included in Prompt

<p>If a CRC/CCRC was hired as a forensic expert, would it be ethical to critique an individual's job search by contacting employers to follow up on an individual's employment application?</p>	<p>The Committee responded that the primary responsibility of a certified rehabilitation counselor working in a forensic setting is to conduct a review of records and/or evaluations and conduct research for the purpose of providing unbiased and objective expert opinions. Therefore, the Committee would consider contacting employers to follow up on an individual's employment application in order to critique an individual's job search, to be outside the boundaries of responsibility for a forensic expert.</p>	<p>It is generally unethical for a CRC/CCRC serving as a forensic expert to directly contact employers to follow up on an individual's employment application without explicit consent. Such actions could breach confidentiality and potentially impact the individual's privacy and autonomy. The role of a forensic expert typically involves evaluating information impartially, without directly intervening in the job search process. It's important that any actions taken by a forensic expert do not compromise the dignity or privacy of the individual involved and adhere to the principles of confidentiality, informed consent, and respect for individual rights as outlined in the CRCC Code.</p>	<p>This scenario needs to be considered in light of Sections G.1 (Evaluatee Rights) and G.2 (Forensic Competency and Conduct) . Forensic roles require unbiased and objective opinions based on relevant data and methodologies appropriate to the service being provided, which may include evaluation, research, and/or review of records. Contacting employers directly to critique an individual's job search could compromise the impartiality and objectivity required in a forensic setting. It could also potentially violate the evaluatee's rights to confidentiality and privacy unless explicitly authorized within the forensic evaluation process. Therefore,</p>
--	--	--	---

			without specific authorization and unless it is a standard practice within the forensic evaluation context, this action would likely be considered unethical.
If a CRC/CCRC was providing vocational rehabilitation services, would it be ethical to recommend an approved vocational training and then contact the training facility to obtain verbal reports in an effort to monitor the individual's progress?	The Committee responded that if a CRC/CCRC is providing direct rehabilitation counseling services, it would be appropriate to contact the training facility in order to obtain a verbal progress report, however, it is best practice to obtain consent from the client prior to making such contact.	Recommending an approved vocational training program and subsequently contacting the training facility to obtain verbal reports to monitor the individual's progress could be considered ethical, provided that informed consent has been obtained from the individual. This action aligns with the counselor's responsibility to advocate for and support the client's vocational development and success, as long as it is done transparently, with the individual's consent, and in a manner that protects their confidentiality. It is essential that the individual is aware of and agrees to this level of involvement from the counselor, understanding how it benefits their vocational rehabilitation process.	Under Section A.3 (Client Rights), particularly A.3.b (Informed Consent), and Section C (Advocacy and Accessibility), CRCs/CCRCs have an ethical obligation to respect the rights of clients to make informed decisions regarding their rehabilitation process. Recommending approved vocational training and then contacting the training facility for progress reports is ethical, provided that informed consent has been obtained from the

			individual. This approach aligns with the Code's emphasis on collaboration with clients in their rehabilitation process, advocating for the client's welfare, and ensuring access to necessary services while respecting client confidentiality and privacy.
Is it ethical for a CRC/CCRC to administer and interpret vocational testing or does that need to be administered and interpreted by a Certified Vocational Evaluator (CVE)?	The Committee responded that it is within the boundaries of competence for a CRC/CCRC to administer and interpret vocational testing only if the certified rehabilitation counselor is qualified and competent to administer and interpret the specific test/instrument.	CRCs/CCRCs are trained and certified to provide a broad range of rehabilitation counseling services, which can include the administration and interpretation of vocational testing, provided they have the appropriate training, competence, and scope of practice to do so. The ethical obligation is to ensure that any assessment tools are used competently and appropriately, with consideration for the individual's needs, rights, and welfare. If the complexity of the testing goes beyond the counselor's level of competence, it would be appropriate, and ethical, to involve a Certified	According to Section H (Assessment and Evaluation), specifically standards H.4 (Competence to Use and Interpret Tests/Instruments) and H.7 (Test/Instrument Scoring and Interpretation), CRCs/CCRCs are expected to only use and interpret assessments for which they are competent, based on their education, training, and professional experience. Administering and interpreting

		Vocational Evaluator (CVE) or another professional with specific expertise in vocational evaluation. The key ethical considerations include competence, informed consent, and acting in the best interests of the individual being served.	vocational testing is within the scope of practice for CRCs/CCRCs if they have acquired the necessary competence. There is no explicit requirement that these tasks must be performed by a Certified Vocational Evaluator (CVE) alone. However, CRCs/CCRCs must ensure their actions are consistent with the Code's directives on maintaining professional competence, respecting client rights, and ensuring the welfare of those served.
--	--	--	--

Artificial Intelligence & Electronic Medical Records: Applications for Rehabilitation Professionals

Christopher Skerrit

CRC, ABVE/F, IPEC, CVE, CLCP, MSCC, CEAS

Paul Bourgeois

CRC, NCC, Psychology Department, University of New Haven

Abstract. This manuscript explores the integration of artificial intelligence (AI) in life care planning and forensic vocational rehabilitation, highlighting the potential of AI technologies in analyzing electronic health records (EHRs). AI applications, including machine learning, deep learning, and natural language processing, streamline the review of complex medical records, enhancing the accuracy and efficiency of assessments related to an individual's functional status, employability, and future care needs. Life care planners and vocational experts can leverage AI to automate data processing, enable predictive analytics, and support data-driven decision-making, resulting in more comprehensive and individualized care plans. However, challenges such as data quality, model transparency, and ethical considerations must be addressed. Ensuring reliable AI-driven analyses requires standardized data and explainable AI models, along with robust ethical guidelines to protect patient privacy and prevent biases. By effectively integrating AI, life care planners and vocational experts have the potential to improve the accuracy and efficiency of their assessments, ultimately enhancing outcomes for individuals with catastrophic injuries or chronic health conditions.

Keywords. electronic health records, artificial intelligence, life care planning, ethics, client assessment

A comprehensive review of medical records is vital for vocational experts to deliver informed and reliable evaluations that support individuals in achieving their vocational goals. The process of gathering and evaluating the necessary information can be arduous and labor intensive, particularly when case documents often involve hundreds or thousands of pages. Previous advances in technology such as electronic health records (EHRs) helped to streamline this process. However, the rapid expansion in artificial intelligence (AI) may further assist vocational practitioners and other rehabilitation professionals by

enabling reliable, accurate, and efficient review of medical records and case documents.

Electronic health records (EHRs) serve as comprehensive digital repositories of patient health data, encompassing information such as medical histories, diagnoses, treatment plans, immunizations, laboratory test results, and radiology images (Häyrinen et al., 2008). EHRs facilitate improved clinical workflows by providing healthcare providers with quick access to accurate, up-to-date longitudinal patient information. This access enhances the quality and

coordination of care by reducing medical errors and enabling more accurate diagnoses and personalized treatment plans. Consequently, EHRs contribute to the overall efficiency of healthcare services by reducing duplicative tests and treatment delays (Adler-Milstein et al., 2017).

The widespread adoption of EHRs has been driven by their potential to enhance the accessibility, accuracy, and timeliness of patient information at the point of care (Menachemi & Collum, 2011). As of 2021, nearly 4 in 5 office-based physicians (78%) and nearly all non-federal acute care hospitals (96%) had adopted a certified EHR. This marks substantial progress since 2011 when only 28% of hospitals and 34% of physicians had adopted an EHR (HealthIT.gov, n.d.). This significant increase highlights the growing recognition of EHRs' benefits in improving patient care and safety as well as operational efficiency in healthcare settings (Upadhyay & Hu, 2022).

Beyond individual patient care, EHRs play a crucial role in supporting medical research, policy review, and public health safety monitoring (Kruse et al., 2018). By aggregating vast amounts of real-world data from diverse populations over time, EHRs offer valuable insights into health trends, disease outbreaks, and the effectiveness of various treatments (Cowie et al., 2017). Researchers can leverage this data to conduct epidemiological studies, develop new treatment protocols, and inform healthcare policies. Additionally, EHRs enable public health authorities to monitor and respond to health crises more effectively by providing timely and comprehensive data on disease patterns and health outcomes (Satterfield et al., 2021). The digitization of

health records has thus become a foundational element in modern healthcare systems, fostering a more dynamic, interconnected, and efficient healthcare environment.

Life Care Planning & Forensic Vocational Rehabilitation

The use of EHRs holds particular significance in the specialized healthcare fields of life care planning and forensic vocational rehabilitation. Life care planners (Rutherford-Owen, Barros-Bailey, & Weed, 2023) and forensic vocational experts (Paquette & Lacerte, 2014) routinely analyze medical records to determine the impact of an injury or illness on an individual's functional status, employability, and future care needs. This process is often difficult, as it requires consideration of medical records related to the acquired condition, as well as pre-existing and comorbid conditions. Moreover, these medical records can be hundreds or even thousands of pages in length, come in different formats, and vary in digital quality, with pages often unorganized. Making sense of, collating, and organizing all of this medical information is an arduous and time-consuming task, particularly without the assistance of technology to streamline the process.

Life care planning involves using a treatment provider's recommendations to assess an individual's condition, identifying potential complications, estimating future care costs, and creating a plan aligned with the individual's goals (May & Moradirekabdarkolaei, 2020). This process emerged to meet the need for a coordinated care model for those with serious injuries or chronic disabilities (Rutherford-Owen et al.,

2023). Life care planners must meticulously review detailed medical records to forecast long-term needs, ensuring care plans are comprehensive and tailored to each unique case.

The 4th Edition of the Standards of Practice for Life Care Planners (2022) emphasized the necessity of thoroughly reviewing medical records to develop effective life care plans. Adopted in 1998, the International Conference on Life Care Planning describes a life care plan as a dynamic document that "provides an organized, concise plan for current and future needs with associated costs for individuals who have experienced catastrophic injury or have chronic health care needs" (Johnson et al., 2022). This review is crucial as it ensures that life care planners can accurately assess and address the evaluatee's needs. The IARP (2022) standards of practice outlines several goals for a life care plan:

- (a) Assisting the evaluatee in achieving optimal outcomes through appropriate rehabilitation, prevention, and complication reduction strategies, thereby improving their health, wellness, and quality of life.
- (b) Providing health education to the evaluatee and relevant parties.
- (c) Specifying needed services and associated costs.
- (d) Evaluating care alternatives to identify the most appropriate and least restrictive options.
- (e) Communicating the plan's objectives clearly to the evaluatee and relevant parties.

A thorough review of medical records is foundational for life care planners to create comprehensive, individualized plans that effectively manage both current and future

needs of those with catastrophic injuries or chronic health conditions (Neulicht et al., 2023).

An in-depth understanding of case files, particularly medical records, is crucial not only for fully supporting an individual's long-term care needs and vocational capacities but also for ensuring that evaluations and testimonies adhere to established standards and guidelines in the adjudication process. Life care planners and forensic vocational experts play a pivotal role in civil litigation related to matters of disability by providing essential evaluations and testimony (Mertes, 2023). Indeed, the American Board of Vocational Experts (ABVE) Code of Ethics (2020) highlights the critical function of vocational experts in determining individuals' work-related capacities.

To fulfill this responsibility, vocational experts engage with various sources, including referral sources, individuals, standard vocational texts, governmental statistics, standardized vocational tests, and community members. A key element of the evaluation process also includes a thorough review of available case records, particularly medical records. These records provide essential insights into the age, education, previous work experience, earnings record, and mental and physical status of individuals with disabilities. Combined with test data and the vocational expert's experience and clinical judgment, these records form the foundation for accurate and comprehensive vocational assessments.

Vocational experts often use information from their assessments to provide testimony that encompasses psychological, vocational, and rehabilitation information, covering aspects such as vocational testing,

vocational exploration, job placement, and job development (Barros-Bailey, 2014). Additionally, they evaluate social, medical, vocational, psychological, and economic data as part of their court testimony. Therefore, a comprehensive review of medical records is vital for vocational experts to deliver informed and reliable evaluations that support individuals in achieving their vocational goals.

In forensic vocational rehabilitation, established assessment models are frequently used to evaluate the impact of injuries on an individual's vocational status and earning capacity. One widely used methodology is the *Rehabilitation potential, Access to the labor market, Placeability, Earnings, and Labor* force participation (RAPEL) model (Weed, 2004; Sprong et al., 2023). This model also considers strategies to enhance labor market access, placeability, earnings, and work-life expectancy, particularly when an acquired injury or condition has affected their vocational status.

Another common methodology is the Vocational and Rehabilitation Assessment Model (VRAM), utilized by vocational experts to evaluate the earning capacity of individuals making claims for lost wages and/or diminished earning capacity in forensic cases (Pomeranz & Robinson, 2014). This peer-reviewed, published methodology involves a comprehensive review of detailed medical information as part of the evaluation process. In examining medical records and other case documentation, vocational experts have utilized both of these models to make informed assessments about how an individual's medical condition influences their employability and potential earnings,

ensuring thorough and accurate evaluations in forensic vocational rehabilitation cases.

Application of Artificial Intelligence in Analyzing Healthcare Datasets

Artificial Intelligence (AI) has emerged as a transformative force in healthcare, particularly in the analysis of the vast and intricate datasets generated by EHRs (Topol, 2019). AI algorithms are able to efficiently process large volumes of data, identifying patterns and trends that may not be readily apparent to human analysts (Jiang et al., 2017). In the context of EHR analysis, AI can automate routine data processing tasks, enable predictive analytics, and support data-driven decision-making processes. Machine learning, a subset of AI, involves using algorithms that learn from and make predictions based on data. Deep learning, an advanced subset of machine learning, structures these algorithms in layers to create artificial neural networks capable of learning and making intelligent decisions independently (Goodfellow et al., 2016; Russell & Norvig, 2021).

These technologies have been applied to various aspects of healthcare, demonstrating their versatility and effectiveness. For instance, AI algorithms have been used to predict outcomes such as heart failure, atrial fibrillation, and hospital readmissions (Desai et al., 2020; Mahmoudi et al., 2020; Tiwari et al., 2020). By analyzing large datasets, these models have been used to identify patterns and risk factors that may not be apparent to healthcare professionals, increasing the likelihood of earlier interventions and better patient management (Alowais et al., 2023). Deep learning models, enhanced by computer vision, are also changing the way healthcare

professionals interpret a wide variety of medical images. These models excel in tasks such as early cancer detection in radiology scans, fracture identification in X-rays, and neurological disorder analysis through MRIs (Jain et al., 2021). By learning from vast datasets, deep learning models are able to identify patterns and correlations that might not be apparent to human healthcare professionals, providing valuable insights that enhance clinical decision making and patient care (Esteva et al., 2019).

Natural language processing (NLP) is another AI technology that significantly enhances the analysis of unstructured EHR data. NLP enables the extraction of valuable information from clinical notes, patient histories, and other text-based data (Sheikhalishahi et al., 2019). For example, Humbert-Droz et al. (2022) demonstrated the potential of an NLP pipeline to automatically extract outcome measures from unstructured EHR data, achieving high accuracy in identifying relevant clinical information. This capability can help to streamline clinical workflows by reducing the time and effort required for manual data extraction, allowing healthcare providers to focus more on patient care and decision-making (Alowais et al., 2023). Ultimately, this has the potential to lead to more efficient and effective healthcare delivery and, hopefully, improved patient outcomes and satisfaction.

Currently, widely used AI models in healthcare include deep learning for processing complex medical data and NLP for EHR analysis (Hossain et al., 2023). These technologies have shown significant potential in predicting critical illnesses and improving clinical decision-making. For example, AI models have been developed to

predict acute critical illness from EHR data, providing clinicians with insights into the factors contributing to a patient's risk and enabling timely interventions (Lauritsen et al., 2020). Additionally, AI models have been used to address challenges in utilizing diverse medical data for predictive analytics, emphasizing the role of AI in data standardization and algorithm refinement to enhance performance and reliability in clinical settings (Kim et al., 2021).

Application of AI in Life Care Planning and Forensic Vocational Rehabilitation

The application of AI in analyzing EHRs holds particular significance in the specialized fields of life care planning and forensic vocational rehabilitation. Life care planners and forensic vocational experts routinely analyze medical records to determine the impact of an injury or illness on an individual's functional status, employability, and future care needs. While it is imperative to consider medical records pertaining to the acquired condition, as well as pre-existing and comorbid conditions, the task can be onerous and time intensive.

AI solutions, such as automated medical chronologies, have the potential offer substantial benefits to life care planners and vocational experts by streamlining the review and analysis of medical records and are currently available on a fee for use service. These technologies enable professionals to easily sort and organize medical records by date, service provider, title, and document category, significantly reducing the time and effort required for manual sorting. Automation makes it feasible to process large volumes of medical records quickly, allowing for document origination and processing at scale. This is particularly beneficial for life care planners

and vocational experts who are sole proprietors, working alone without the support of additional staff. By saving time on manual tasks, AI might allow life care planners and vocational experts to focus on extracting valuable insights from medical records, enhancing the accuracy and comprehensiveness of their assessments. This efficiency reduces the burden of medical chronology costs and enables professionals to allocate more resources to critical case aspects, ensuring better outcomes while cutting expenses.

Beyond the review and analysis of medical records, AI's potential is being explored in other areas of life care planning (Bourgeois et al., 2024). AI has been utilized to predict future medical needs and costs based on similar patient histories in relevant geographic regions (Atasoy et al., 2019), which would aid in the creation of comprehensive and individually specific life care plans. Additionally, AI models have been used to analyze past treatment outcomes to guide recommendations for future care strategies, ensuring they are both cost-effective and medically appropriate (Davoudi et al., 2019).

AI's ability to swiftly and accurately analyze vast amounts of data presents an opportunity for life care planning. For instance, machine learning algorithms have been utilized to identify patterns in patient data that human analysts might overlook (Esteva et al., 2019). These patterns might help provide insights into the likely progression of a patient's condition, potential complications, and effective treatment plans, helping life care planners better project short- and long-term costs. Moreover, AI has been used to assist in estimating the long-term costs associated

with various medical conditions by evaluating historical data and extrapolating future trends (Caruccio et al., 2024). This capability is particularly valuable in creating life care plans that are not only comprehensive but also financially sustainable.

In the field of forensic vocational rehabilitation, AI has the potential to modernize the assessment of an individual's employability by analyzing past rehabilitation outcomes and current labor market trends to provide data-driven evaluations of employment projections. Using AI as a tool has the ability to help clinicians by making accurate predictions and tailored recommendations that enhance the effectiveness of rehabilitation programs and support better outcomes for individuals (Hoffman et al., 2020). Additionally, AI might be used to assist in the examination of detailed data to determine an individual's capacity for work by considering medical limitations and rehabilitation progress. This enables professionals to make more informed decisions and align rehabilitation efforts with realistic and achievable goals (Kulkarni et al., 2020).

Furthermore, AI-driven tools have the ability to integrate data from various sources, including clinical notes, diagnostic images, and socioeconomic factors, which would provide a holistic view of an individual's capabilities and limitations. This comprehensive analysis aids forensic vocational experts in making more precise evaluations regarding an individual's employability and potential earning capacity. For example, AI could be used to simulate various scenarios based on different rehabilitation pathways, helping experts to identify the most effective

interventions for facilitating a return to work. This would not only improve the accuracy of vocational assessments but also ensure that rehabilitation plans are personalized and contextually relevant.

AI's potential extends to ongoing monitoring and adjustment of life care and rehabilitation plans. By continuously analyzing new data as it becomes available, AI systems are able to update predictions and recommendations, ensuring that care and rehabilitation strategies remain aligned with the individual's evolving needs (Bhagat & Kanyal, 2024). This dynamic approach supports continuous improvement in patient outcomes and enhances the ability of life care planners and vocational rehabilitation experts to provide timely and effective support.

Challenges, Limitations, & Ethical Considerations

Despite the promising potential of AI in life care planning and forensic vocational rehabilitation, there are significant challenges and limitations that need to be addressed. A primary challenge is the quality and completeness of data used to train AI algorithms. EHRs often suffer from inconsistencies, missing entries, and unstructured data, which can adversely impact the accuracy and reliability of AI predictions (Häyrynen et al., 2008). Incomplete or poorly annotated datasets can result in biased or incorrect outputs, compromising the effectiveness of AI-driven analyses.

The integration of AI into existing healthcare systems also presents substantial technical and logistical challenges. Many healthcare institutions employ different EHR systems with varying standards and data

formats, complicating the consolidation and comprehensive analysis of data (Adler-Milstein et al., 2017). This fragmentation limits AI's ability to process and learn from diverse datasets, thereby restricting its capacity to generate accurate and generalizable insights. Enhancing interoperability standards is essential to facilitate seamless data sharing and integration across various platforms.

Continuous validation and updating of AI models present another challenge. Healthcare is a dynamic field with constantly evolving treatments, guidelines, and medical knowledge. AI systems must be regularly updated and validated against the latest clinical data to maintain their accuracy and relevance. This ongoing process requires a robust infrastructure and dedicated resources to monitor and refine AI models continually (Kim et al., 2021). Life care planners and vocational experts should maintain a critical eye, using their clinical judgment and expertise to review AI outputs for correctness and applicability. It is essential for these professionals to remain vigilant, ensuring that AI-generated recommendations align with the most current and relevant clinical standards and practices.

Another significant limitation is the interpretability of AI models. While deep learning algorithms have been shown to produce highly accurate predictions, they often function as "black boxes," offering little transparency regarding how specific conclusions are reached (Hassija et al., 2024). This lack of transparency can impede the acceptance and trust of AI systems among healthcare professionals, including life care planners and vocational experts, who frequently operate within a legal

context. These professionals may be hesitant to rely on AI recommendations they do not fully understand, especially when their assessments are subject to legal and ethical scrutiny. Developing explainable AI models that provide clear and interpretable insights is crucial for fostering user confidence and ensuring that AI-driven decisions are scientifically sound and legally defensible (Goodfellow et al., 2016; Russell & Norvig, 2021). Vocational experts and life care planners are currently left to determine for themselves whether the use of AI in this manner is appropriate, with little guidance from ethical governing bodies and professional organizations. This lack of clear directives can lead to uncertainty and inconsistency in the application of AI, highlighting the need for comprehensive guidelines and standards.

Ethical considerations are paramount when integrating AI into life care planning and vocational expert work. The use of AI to analyze personal health data raises significant concerns about patient privacy and data security (Murdoch, 2021). Ensuring that any technology used complies with stringent data protection regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States, is vital for maintaining patient trust and safeguarding sensitive information (Owen et al., 2021). Additionally, rehabilitation professionals should scrutinize the AI models they are using to ensure they are designed to be transparent and include measures to prevent bias and discrimination. Experts should use their clinical judgment and not solely rely on AI for decision-making (Giordano et al., 2021).

Life care planners and vocational experts operate within specialized fields that

demand a combination of expertise, professionalism, and ethical considerations. Adhering to the Code of Ethics (e.g., IARP, CRCC, ABVE, etc.) associated with their roles, certifications, and credentials ensures that they conduct their assessments and recommendations with integrity, objectivity, and competency (IARP, 2022). However, existing professional codes often lack explicit directives on the application of AI, necessitating the interpretation and adaptation of these standards to AI applications. Rehabilitation professionals are left navigating a murky ethical landscape, making it difficult to discern appropriate use of this technology in a manner that aligns with their professional and ethical obligations.

Updates to the ethical codes from key professional organizations like the Commission on Rehabilitation Counselor Certification (CRCC, 2023), the National Board for Certified Counselors (NBCC, 2023), the International Association of Rehabilitation Professionals (IARP, 2022), the American Counseling Association (ACA, 2014), the Certified Disability Management Specialists (CDMS, 2023), and the American Board of Vocational Experts (ABVE, 2020) include guidelines on technology use. However, these updates are general and don't fully cover the ethical considerations specific to AI technologies. This gap leaves rehabilitation counselors with limited guidance on how to integrate AI into their practice ethically. Ensuring that technology aligns with the core values and principles of these professions while safeguarding the well-being and rights of individuals served is essential (Rutherford-Owen et al., 2023).

The concern of data privacy and secure handling of sensitive patient information is

fundamental. AI's ability to enhance assessment accuracy and efficiency must be balanced against potential privacy issues. Life care planners, grounded in their professional ethical standards, can advocate for transparent data management practices and establish clear disclosure protocols to inform stakeholders about AI's role in data analysis and decision-making processes (Neulicht et al., 2023). Transparency and explainability are crucial, especially given the legal significance of life care plans. Life care planners can collaborate with AI developers to create clear and interpretable algorithms and incorporate dedicated sections in their plans detailing AI's involvement and its influence on decisions. This approach would align with ethical foundations and foster trust among stakeholders (Poongodi et al., 2021). However, if AI developers are unable to provide a clearer and more understandable look into the "black box," this lack of transparency can impede the acceptance and trust of AI systems among healthcare professionals, including life care planners and vocational experts, who frequently operate within a legal context.

AI should be leveraged to augment, not replace, the seasoned judgment of life care planners (Bourgeois et al., 2024). These professionals must continue to provide nuanced assessments that consider emotional, psychological, and socio-environmental factors, ensuring that the human element remains central in their work (IARP, 2022). Addressing potential devaluation of human expertise, maintaining rigorous validation mechanisms, and fostering transparent stakeholder engagement are essential to navigating the challenges and ethical considerations of AI in life care planning and vocational expert

work. Rehabilitation professionals can effectively integrate AI while maintaining trust and upholding the highest standards of care by emphasizing competence and adherence to ethical standards.

Conclusion

The integration of AI in life care planning and forensic vocational rehabilitation holds great potential for these specialized fields. By leveraging AI technologies such as machine learning, deep learning, and natural language processing, professionals have the ability to enhance the accuracy, efficiency, and comprehensiveness of their assessments. AI-driven solutions can streamline the arduous task of analyzing extensive and complex medical records, providing valuable insights that might otherwise be overlooked. This technological advancement promises to improve patient care, optimize long-term planning, and support the accurate determination of vocational capacities.

However, the successful implementation of AI requires addressing several critical challenges and ethical considerations. Ensuring high-quality, standardized data is essential for reliable AI predictions, while the development of transparent and explainable AI models is crucial for gaining the trust of life care planners, vocational experts, and other stakeholders. Continuous validation and updating of AI systems are necessary to keep pace with evolving medical knowledge and treatment protocols. Furthermore, stringent measures must be in place to protect patient privacy and prevent biases in AI algorithms, maintaining the ethical standards of the professions involved.

The integration of AI into life care planning and vocational expert work raises complex

ethical questions that are not fully addressed by current professional guidelines. There is a pressing need for a more comprehensive framework that provides actionable guidance for counselors, educators, and policymakers. This framework should focus on developing best practice guidelines to navigate the unique challenges posed by AI technologies. Proactive steps are essential to ensure that AI applications in life care planning and vocational rehabilitation are both ethically sound and practically effective. By establishing clear standards and protocols, the profession can better manage the ethical implications of AI, ensuring that these powerful tools are used responsibly and beneficially.

References

- Adler-Milstein, J., Holmgren, A. J., Kralovec, P., Worzala, C., Searcy, T., & Patel, V. (2017). Electronic health record adoption in US hospitals: The emergence of a digital "advanced use" divide. *Journal of the American Medical Informatics Association*, 24(6), 1142-1148.
<https://doi.org/10.1093/jamia/ocx080>
- Alowais, S., Alghamdi, S., Alsuhebany, N. Algahtani, T., Alshaya, A., Albekairy, A. (2023). Revolutionizing healthcare: The role of artificial intelligence in clinical practice. *BMC Medical Education*, 23, 689. <https://doi.org/10.1186/s12909-023-04698-z>
- American Board of Vocational Experts. (2020). Code of Ethics. Retrieved from https://www.abve.net/assets/Certification/ABVE_Code_of_Ethics_2020-revised.pdf
- American Counseling Association (2014). *ACA code of ethics*. Retrieved from https://www.counseling.org/docs/default-source/default-document-library/ethics/2014-aca-code-of-ethics.pdf?sfvrsn=55ab73d0_1
- Atasoy, H., Greenwood, B. N., & McCullough, J. S. (2019). The digitization of patient care: A review of the effects of electronic health records on health care quality and utilization. *Annual Review of Public Health*, 40, 487-500.
<https://doi.org/10.1146/annurev-publhealth-040218-044206>
- Barros-Bailey, M. (2014). History of forensic vocational rehabilitation counseling. In R. H. Robinson (Ed.), *Foundations of forensic vocational rehabilitation*. Springer.
- Bhagat, S., & Kanyal, D. (2024). Navigating the future: The transformative impact of artificial intelligence on hospital management – a comprehensive review. *Cureus*, 16(2).
<https://doi.org/10.7759/cureus.54518>
- Bourgeois, P., Allison, A., & Skerritt, C., (2024). Harnessing artificial intelligence for enhanced life care planning: Innovations, challenges, and ethical considerations. *Journal of Life Care Planning*, 22(1), 25-37.
- Caruccio, L., Cirillo, S., Polese, G., Solimando, G., Sundaramurthy, S., Tortora, G. (2024). Can ChatGPT provide intelligent diagnoses? A comparative study between predictive models and ChatGPT to define a new medical diagnostic bot. *Expert Systems and with Applications*, 235.
<https://doi.org/10.1016/j.eswa.2023.121186>

- Certified Disability Management Specialist.
(2023). *The CDMS code of professional conduct*. Retrieved from <https://www.cdms.org/code-conduct>
- Commission on Rehabilitation Counselor Certification. (2023). *Code of professional ethics for rehabilitation counselors*. Retrieved from <https://crccertification.com/wp-content/uploads/2023/04/2023-Code-of-Ethics.pdf>
- Cowie, M. R., Blomster, J. I., Curtis, L. H., Duclaux, S., Ford, I., Fritz, F., Goldman, S., Janmohamed, S., Kreuzer, J., Leenay, M., Michel, A., Ong, S., Pell, J. P., Southworth, M. R., Stough, W. G., Thoenes, M., Zannad, F., & Zalewski, A. (2017). Electronic health records to facilitate clinical research. *Clinical Research in Cardiology*, 106(1), 1-9
<https://doi.org/10.1007/s00392-016-1025-6>
- Davoudi, A., Malhotra, K. R., Shickel, B., Siegel, S., Williams, S., Ruppert, M., Bihorac, E., Ozrazgat-Baslanti, T., Tighe, P. J., Bihorac, A., & Rashidi, P. (2019). Intelligent ICU for autonomous patient monitoring using pervasive sensing and deep learning. *Scientific Reports*, 9(1), 1-13.
<https://doi.org/10.1038/s41598-019-44004-w>
- Desai, R. J., Wang, S. V., Vaduganathan, M., Evers, T., & Schneeweiss, S. (2020). Comparison of machine learning methods with traditional models for use of administrative claims with electronic medical records to predict heart failure outcomes. *JAMA Network Open*, 3(1),
<https://doi.org/10.1001/jamanetworkopen.2019.18962>
- Esteva, A., Robicquet, A., Ramsundar, B., Kuleshov, V., DePristo, M., Chou, K., Cui, C., Corrado, G., Thrun, S., & Dean, J. (2019). A guide to deep learning in healthcare. *Nature Medicine*, 25(1), 24-29.
<https://doi.org/10.1038/s41591-019-0458-3>
- Giordano, C., Brennan, M., Mohamed, B., Rashidi, P., Modave, F., ... Tighe, P. (2021). Accessing artificial intelligence for clinical decision making. *Frontiers in Digital Health*, 3, 645232.
<https://doi.org/10.3389/fdgth.2021.645232>
- Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press.
- Hassija, V., Chamola, V., Mahapatra, A., Singal, A., Goel, D., ... Hussain, A. (2024). Interpreting black-box models: A review on explainable artificial intelligence. *Cognitive Computation* 16(45), 45-74.
<https://doi.org/10.1007/s12559-023-10179-8>
- Häyriinen, K., Saranto, K., & Nykänen, P. (2008). Definition, structure, content, use and impacts of electronic health records: A review of the research literature. *International Journal of Medical Informatics*, 77(5), 291-304.
<https://doi.org/10.1016/j.ijmedinf.2007.09.001>
- HealthIT.gov. (n.d.). Office-based Physician Electronic Health Record Adoption. <https://www.healthit.gov/data/quickstats/office-based-physician-electronic-health-record-adoption>
- Hoffman, G., Webster, N. J., & Bynum, J. P. (2020). A framework for aging-friendly services and supports in the age of COVID-19. *Journal of Aging & Social Policy*, 32(4-5), 450-459. <https://doi.org/10.1080/08982643.2020.1818181>

- 08959420.2020.1771239
- Hossain, E., Rana, R., Higgins, N., Soar., J., Barua, P., ... Turner, K. (2023). Natural language processing in electronic health records in relation to healthcare decision-making: A systematic review. *Computers in Biology and Medicine*, 155. <https://doi.org/10.1016/j.compbiomed.2023.106649>
- Humbert-Droz, M., Izadi, Z., Schmajuk, G., Gianfrancesco, M., Baker, M., Tamang, S. (2022). Development of natural language processing system for extracting rheumatoid arthritis outcomes from clinical notes using the National Rheumatology Informatics System for Effectiveness registry. *Arthritis Care & Research*, 75(3), 608-615. <https://doi.org/doi:10.1002/acr.24869>
- International Association of Rehabilitation Professionals. (2022). Standards of Practice for Life Care Planners, 4th edition. Retrieved from <https://rehabpro.org/page/ialcp-standards-of-practice>
- Jain, A., Way, D. H., Gupta, V., Gao, Y., Marinho, G. de O., Hartford, J., & Liu, Y. (2021). Development and assessment of an artificial intelligence-based tool for skin condition diagnosis by primary care physicians and nurse practitioners in teledermatology practices. *JAMA Network Open*, 4(4). <http://doi.org/10.1001/jamanetworkopen.2021.7249>.
- Jiang, F., Jiang, Y., Zhi, H., Dong, Y., Li, H., Ma, S., Wang, Y., Dong, Q., Shen, H., & Wang, Y. (2017). Artificial intelligence in healthcare: Past, present and future. *Stroke and Vascular Neurology*, 2(4), 230-243. <https://doi.org/10.1136/svn-2017-000101>
- Kim, H.-S., Kim, J. H., Lee, S.-H., & Han, K. (2021). Prospect of artificial intelligence based on electronic medical record. *Journal of Lipid and Atherosclerosis*, 10(3), 282-290. <https://doi.org/10.12997/jla.2021.10.3.282>
- Kruse, C., Stein, A., Thomas, H., & Kaur, H., (2018). The use of electronic medical records to support population health: A systematic review of the literature. *Journal of Medical Systems*, 41(11), 214. <https://doi.org/10.1007/s10916-018-1075-6>
- Kulkarni, S., Seneviratne, N., Baig, M. S., & Khan, A. H. A. (2020). Artificial intelligence in medicine: Where are we now? *Academic Radiology*, 27(1), 62-70. <https://doi.org/10.1016/j.acra.2019.10.001>
- Lauritsen, S., Kristensen, M., Olsen, M., Larsen, M., Lauritsen, K., Thieson, B. (2020). Explainable artificial intelligence model to predict acute critical illness from electronic health records. *Nature Communications*, 11, <https://doi.org/10.1038/s41467-020-17431-x>
- Mahmoudi, E., Kamdar, N., Kim, N., Gonzales, G., Singh, K., & Waljee, A. K. (2020). Use of electronic medical records in development and validation of risk prediction models of hospital readmission: systematic review. *BMJ*, 369. <https://doi.org/10.1136/bmj.m958>
- May, V., & Moradirekabdolkolae, H. (2020). The International Commission on Health Care Certification life care

- planner role and function investigation. *Journal of Life Care Planning*, 18(2), 3-67.
- Menachemi, N., & Collum, T. H. (2011). Benefits and drawbacks of electronic health record systems. *Risk management and healthcare policy*, 47-55.
- Mertes, A. (2023). *Careers in private rehabilitation counseling*. Self-published.
- Murdoch, B. (2021). Privacy and artificial intelligence: Challenges for protecting health information in a new era. *BMC Medical Ethics*, 22.
<https://doi.org/10.1186/s12910-021-00687-3>
- Neulicht, A., Riddick-Grisham, S., Barros-Bailey, M., Knott, M., Maxwell, A., Robinson, R. (2023). Life care planning practice survey. *Journal of Life Care Planning*, 21(3), 5-112.
- Owen, T., Thomas, L., & Dunlap, K. (2021). Evolution of life care planning with technology. *Journal of Life Care Planning*, 19(1), 65-80.
- Paquette, S., & Lacerte, M. (2014). Medical evidence and residual functional capacity. In R. H. Robinson (Ed.), *Foundations of forensic vocational rehabilitation*. Springer.
- Pomeranz, J. L., & Robinson, R. H. (2014). The Vocational and Rehabilitation Assessment Model (VRAM): Introduction of an empirically derived model of forensic vocational and rehabilitation assessment. *The Rehabilitation Professional*, 19(4), 91-104.
- Poongodi, T., Sumathi, D., Suresh, P., & Balusamy, B. (2021). Deep learning techniques for electronic health record (EHR) analysis. Bio-inspired Neurocomputing, 73-103.
https://doi.org/10.1007/978-981-15-5495-7_5
- Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.
- Rutherford-Owen, T., Barros-Bailey, M., & Weed, R. (2023). *Life care planning and case management across the lifespan* (5th ed.). New York: Routledge.
- Satterfield, B., Dikilitas, O., & Kullo, I. (2021). Leveraging the electronic health record to address the COVID-19 pandemic. *Mayo Clinical Procedures*, 96(6), 1592-1608.
<https://doi.org/10.1016/j.mayocp.2021.04.008>
- Sheikhalishahi, S., Miotto, R., Dudley, J. T., Lavelli, A., Rinaldi, F., & Osmani, V. (2019). Natural language processing of clinical notes on chronic diseases: Systematic review. *JMIR Medical Informatics*, 7(2), e12239
<https://doi.org/10.2196/12239>
- Sprong, M. E., Thomas, L., Fuscaldo, N., Purinton, J., & Oakes, T. (2023). Examination of forensic vocational rehabilitation models: Prior graduate-level training and current use per forensic setting. *Rehabilitation Professional*, 31(1).
- Tiwari, P., Colborn, K. L., Smith, D. E., Xing, F., Ghosh, D., & Rosenberg, M. (2020). Assessment of a machine learning model applied to harmonized electronic health record data for the prediction of incident atrial fibrillation. *JAMA Network Open*, 3(1), <https://doi.org/10.1001/jamanetworkopen.2019.19396>
- Topol, E. J. (2019). High-performance medicine: The convergence of human

and artificial intelligence. *Nature Medicine*, 25(1), 44-56.

<https://doi.org/10.1038/>

Upadhyay, S., & Hu, H. F. (2022). A Qualitative Analysis of the Impact of Electronic Health Records (EHR) on Healthcare Quality and Safety: Clinicians' Lived Experiences. *Health services insights*, 15, 11786329211070722.

<https://doi.org/10.1177/>

11786329211070722

Weed, R. O. (Ed.). (2004). *Life care planning and case management handbook*. CRC Press.

McCroskey MVQS Transferable Skills Software Program

Ronald T. Smolarski

M.A., IPEC, CRC, LPC, CRV/D, CCM, ABVE/D, ABMPP/D, Certified Life Care Planner, Forensic Economist CEA, Certified Functional Capacity Evaluator, Vocational Expert

This essay provides an in-depth understanding of the most comprehensive method of evaluating an injured worker or someone whose work capacity is in question, as well as how to use the professional tools you need to provide quality workmanship in your reports. Bill McCroskey, Ph.D., and his colleague Ken Dennis, Ph.D., worked together and independently to develop the MVQS and Volcano (a subset of the MVQS). Ken Dennis has updated the VDARE+ program, which was the main platform for all transferrable skills analysis (TSA) programs used in the vocational evaluation industry in North America. Their effort allowed them to weed out all the occupations that do not exist in North America. You can review and use the updates listed on the website for VDARE+: www.pearlstreatment.com.

Is there a methodology to objectively evaluate a worker's ability to work at a competitive and sustained rate? Can this methodology pass a Daubert challenge? Was the vocational evaluation developed by a vocational evaluator? Has the evaluation system been in existence for years? The answer to all of these questions is "yes." Below I present a work in progress that will show this to be the case and help you provide the most thorough and professional

reports on injured workers.

This issue is important because the U.S. government at present is again attempting to develop an updated Dictionary of Titles (DOT). Past attempts have failed. Currently, economists and human resources people drawn from private contractors are attempting to throw out decades of professional vocational research in favor of subjective rather than objective data, which is unfair to society and to the average worker. They have spent a great deal of time to recognize that, for example, a one-armed worker has different rates of competencies for overhead work and waist-level work. However, we as rehabilitation counselors who also address life care planning know that one-armed tasks cause overuse syndrome (rotator cuff/carpal tunnel injuries) and therefore would cause the good arm to also become disabled.

My conclusion is that the information and procedures I am providing here, based on vocational data, are vastly superior to this current attempt at updating the DOT. Economists and human resource people are not trained to evaluate work at its very detailed and basic level. The methodology that I illustrate herein provides the rehabilitation counselor/vocationalevaluator with an

objective method for doing these evaluations.

We as rehabilitation counselors/vocational evaluators can objectively test such abilities as reasoning, math, language, spatial perception, clerical perception, motor coordination, finger dexterity, and manual dexterity, as well as characteristics such as interest, personality, work values, work temperament, situational assessment, and judgement and safety. We also can consult with treating physicians or physician experts as well as expert therapists to conduct a proper TSA, in terms of physical abilities, environmental tolerances, and other tolerances, including hazards, extreme temperatures, and dust and fumes.

The McCroskey Transferable Skills Program can incorporate all the values above using our vocational evaluation test results and consultations or communication with physicians, therapists, and our own clinical judgement. The objective testing and consultations with other rehab professionals and the use of MVQS provide the rehabilitation counselor/vocational evaluator with peer-reviewed values that have a standard error of estimate, dependable reliability, and clear standards. This methodology will provide a safe harbor in case of Daubert challenges.

In “California: Questioning the Vocational Expert; Criteria for Vocational Reports” (2024), Hon. Robert G. Rassp and Hon. Clint Feddersen describe the McCroskey Transferable Skills Program software as:

a proprietary computer program that takes into account the applicant’s past

relevant work, skills, education, and work experience, and determines with statistical significance any transferable skills and predicted future earnings based upon jobs that an injured worker could perform. The program utilizes the U.S. Department of Labor’s Dictionary of Occupational Titles (D.O.T.) that indicates the level of skills, description of duties, and arduousness of each type of job classification in the national, regional, and local economies. This program, and perhaps others that are utilized by vocational counselors, have demonstrated validity and reliability in the courts outside the WCAB, and time will tell whether these experts and their instruments will be admitted into evidence in workers’ compensation cases.

The first level of analysis in the MVQS incorporates the worker’s work history using values taken from the Dictionary of Titles (DOT). There are 24 values that are present in a demonstrated work history. The vocational evaluator obtains the history of relevant occupations a worker has had during the past 15 years. In the DOT, each worker trait is assigned a value according to the importance in a particular worker’s occupation. However, the rehabilitation counselor/vocational evaluator’s job analysis must include any adjustments that need to be made in the case of the individual occupation.

The second stage of developing a composite of test scores when using the MVQS requires the vocational evaluator to place the scores from all the evaluatee’s test results into

the MVQS TSA software. The next step is to place the physicians' and therapists' responses to the questions on the evaluatee's physical abilities, environmental tolerances, and other tolerances (see below).

The third stage (there are 4 rows of values in the software) of evaluation is where the vocational evaluator uses his or her clinical judgement on all worker traits. One of the most important values that will need adjustment is eye/hand/foot coordination. If the evaluatee had no concerns with this trait preinjury, then the trait must be adjusted to a 4 (this is an average value). The same is true for all the traits involving physical abilities, environmental tolerances, and other tolerances. If there are no previous medical conditions prior to the most recent injury, all physical/environmental traits must be moved to a 1 and work location trait to a 3 (if it is not there already). If through your collaboration with treating/expert professionals, you learn that the worker had a medical condition that would impact a worker trait in these areas, you need to decrease the trait levels.

The following traits are what most likely need to be adjusted within the parenthesized values in light of clinical judgement:

- strength (1-3)
- climb/balance (0-1)
- stoop//kneel (0-1)
- reach/handle (0-1)
- talk/hear (1-0)
- see (0-1)
- work location (1-3)
- extreme cold (0-1)
- extreme heat/humidity (0-1)

- hazards (0-1)
- dust/fumes (0-1)

It is possible that the worker may have had higher test scores than the history indicated. For example, possibly a co-worker who helped with some of the worker's responsibilities had traits that are associated with the work history. Again, if this were an issue, the vocational evaluator would need to make clinical judgement and adjust the worker traits.

The fourth stage of evaluation is the last level after obtaining a work history of all DOT numbers establishing what the worker's demonstrated work history was. At this level, the information revealed in the previous stages is the conclusion, or synthesized and quantified level of vocational worker trait factor analysis.

So, what do we have now? Thirty-two reports based on my analysis that can be generated by the software. I use the most common reports that provide me with what I need to determine wage loss or wage capacity (e.g., 10%, 25%, 50%, 75%, 90%). If the worker after an injury can possibly be retrained into another occupation, I can determine if the evaluatee is 70% or more likely to be able to be retrained.

The most important reports that I use, in the order that I use them, are the following:

- McDOT-Report #4 (the 24 most vocationally significant worker traits), which provides the worker's trait levels for all worker traits in the worker's demonstrated work history, including VQ (vocation quotient, overall sophistication/difficulty of the worker's occupational history as indicated by worker

traits in the DOT), SVP (specific vocational preparation, how long it takes to learn the occupation), skill level (unskilled, semiskilled, and skilled), and strength level (sedentary, light, medium, heavy, and very heavy).

- MTSP-Report #3 (client worker trait profiles) provides all four levels of assessment (1st level, history of DOT, 2nd level evaluation, 3rd level clinical judgement, 4th level, summary of levels 1-3).

- MTSP-Report #4 (pre- post comparisons and residual employability) provides the number of occupations in a state, province, or county. The number of occupations that have diminished from pre-injury to post-injury are accounted for, to provide a total of the number of occupations and access to employment. Access provides the percentage of occupations that exist pre- and post-injury. A section of report #4 provides training potential pre- and post-injury. This section also provides wage loss and earning capacity pre- and post-injury (mean, 10%, 25%, 50%, 75%, 90%), maximum vocational quotient preinjury and post injury and training potential. I do this report twice - once by state and once by county, or in Canada, just once by province.

Section 5, part 3 of MTSP-Report #4 provides transferable skills at the following pre- and post-injury levels: TS - no transferable skills available (0-19%); few if any transferable skills available (20-39%); low transferable skills available (40-59%); moderate transferable skills available (60-79%); high transferable skills available (80-97%). To use this, the vocational evaluator

should only consider occupations from the low transferable skills level to the high transferable skills level. This is the only number of occupations that utilize transferable skills. If a person has no transferable skills available or few if any transferable skills available, that means the worker could perform the occupations, but the worker trait levels will only minimally assist the worker, if at all.

- MTSP-Report #10 (job matches by transferrable skills [TS] - present value earning capacity [that is, wage loss]). This provides the occupations that that the worker now has available after injury. This report provides the DOT#, occupation titles, transferable skills level, VQ (vocational quotient – you need this to determine the error rate and it also provides an aggregate rate value of all the worker traits for the total difficulty of the occupation), SVP (specific vocational preparation), VA (worker values, an instrument within the MVQS), VIPR (interest/personality test – an instrument within MVQS), and wage level (mean level, 10% wage level, 25% wage level, 50% wage level, 75% wage level, and 90% wage level). When using the wage level for post-injury, use 10% if the worker has no experience in the industry and 25% if the worker has some experience in the industry.

If your state or province has a minimum wage rate, use that rate rather than the 10% wage rate level. If the worker's employer paid the injured worker more than the wage rate levels, use the rate that the employer paid the worker for past wages. If your state or province uses wage capacity rather than

wage loss, also incorporate the average worker profile (DOT 999.999-999) for your work history after you conduct your worker trait factor analysis. Take the average means of all previous demonstrated occupational history dollar amounts along with the average worker profile. Then divide the total dollar amount for all the DOT dollar amounts, and multiply by 2080 work hours in a year to obtain the annual dollar wage capacity for the injured worker – for cases of personal injury, medical malpractice, wrongful death, workers comp, product liability, or for wrongful discharge cases or matrimony damage cases.

- MTSP-Report #7 (Work History by VQ – Present Value Earning Capacity) is the last report that I use. If you are seeking to obtain work capacity, you will want to enter the average worker profile (DOT 999.999-999) as a separate input to the demonstrated work history and add the average worker profile. You will do this input after you have inputted all your test scores and clinical judgment and collaboration data to the MVQS and you have also completed your final synthesis and quantifying in your vocational evaluation, which gives you wage loss. If your state or province allows wage capacity instead of wage loss, you can re-run the program for MTSP-Report #7 after you input the average worker profile (DOT 999.999-999). This second report provides the following data for work history: DOT code, occupational title, vocational quotient, specific vocational preparation, values agreement (worker's values), Vocational Interest and Personality Reinforcer (VIPR), and wage levels (mean – 90%).

The McCroskey MVQS allows the rehabilitation counselor/vocational evaluator to synthesize all their objective testing results: educational development (reasoning, math, language), and aptitudes (spatial perception, form perception, clerical perception, motor coordination, finger dexterity, manual dexterity). As well, the results of your collaboration with physicians and other experts regarding the worker's condition will also be incorporated, including functional capacity evaluation (FCE) for physical capacities, eye/hand/foot coordination, color discrimination/vision and all the environmental concerns (strength, climbing, stooping/kneeling, reaching/handling, talking/hearing, seeing), work location (indoors or outdoors), extreme heat, wetness/humidity, noise/vibration, hazards (moving mechanical parts, electrical shock, working on high places, exposure to burns and radiation energy, explosives, and/or toxic chemical and biological agents), and work values (achievement/working conditions; recognition/relationship; support/independence). For example, the rehabilitation counselor/vocational evaluator will include results of data interpreted by physicians and other experts, such as X-rays, MRIs, the Minnesota Multiphasic Personality Inventory (MMPI), etc.

There are a couple hundred types of educational development and aptitude tests loaded into the McCroskey MVQS. Make sure that the new test(s) you want to add to the MVQS have a reliability of 70% or greater.

Work values and interest test scores are also part of the synthesis. Using clinical

judgement, the rehabilitation counselor/vocational evaluator can also can also conduct a more refined analysis using temperaments, situational assessment values, leisure interest surveys, the functional capacity checklist, the Oswestry Disability Questionnaire, the McGill Pain Questionnaire, the Katz Index of Independence in Activities of Daily Living, Judgement and Safety Screening Inventory, the Lawton-Brody Instrumental Activities of Daily Living Scale, the Jamar Dynamometer Grip Strength/Pinch Strength, and life care plan data. I am constantly adding new sources of evaluation data to all this additional data that I use for cases. I presently have several new instruments that I am reviewing to incorporate into my clinical judgment analysis. In this essay, I am providing you with additional instruments for your use in obtaining a more thorough evaluation understanding and accurate conclusions to your vocational synthesis.

I include charts (see appendices) to help you better understand the worker traits and their values and incorporate them into your reports and vocational analyses. I also provide a sample physician letter and a neuropsychologist letter that will assist you to obtain responses from the physician and therapist, rather than receiving limited or no cooperation or guarded words. The key tip here that I use in these letters to obtain clear responses is to include the following: the evaluatee's answers to questions regarding their capacities and my responses to and conclusions regarding those answers (using my FCE results and Epic Spinal Function Sort/Hand Function Sort findings). I then

request that the physician (in most cases a physiatrist, because they are the only physicians that are taught physical function in medical school and can address long-term care) to agree or disagree and make an adjustment to my conclusions. If the only physicians available to answer your questions are orthopedists, neurologists, general practitioners, or any other doctors besides psychiatrists, it will be difficult to impossible for them to answer the questions about physical function and return to work. In this case, it is recommended that you ask the attorney to obtain a physiatrist. It is worthwhile to cultivate a relationship of your own with a physiatrist who can serve in these instances. Many of you may not have the training that I have as a functional capacity evaluator, but you can obtain forms from the Employment Potential Improvement Corporation (available in English and Spanish) from Matheson & Associates and receive training in functional capacity evaluations.

The MVQS program uses a Standard Error of Estimate to predict income. The data provided by the government is a Relative Standard of Error (that is, consistency of data collection; this is what the private federal contractors are using for their attempt to update the DOT). That does not predict income. It predicts the error of measuring information that is provided to the government. Predicting income is not the same as predicting the accuracy of counties, metropolitan service areas, and states reported information.

References

Rassp, G. & Feddersen, C. (June 19, 2024).
California workers' compensation
discovery [excerpt]. *LexisNexis*.
<https://www.lexisnexis.com/>

community/insights/legal/workers-
compensation/b/recent-cases-news-
trends-developments/posts/california-
questioning-the-vocational-expert-
criteria-for-vocational-reports

Appendix A

Quick Reference for Predictive Validity (R_{xy}) & Known Error Rates (SE_e) In the 4 VQ Bands used for Curvilinear Earning Capacity Prediction

Across All 4 VQ Bands 68 - 158	VQ Range	VQ Band	%ile Band	% Jobs in Range	R_{xy}	SE_e
Mean (Average) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.9219	\$ 3.50
10th %ile (1st Year) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.8994	\$ 2.10
25th %ile (2-3 Year) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.8826	\$ 3.40
50th %ile (4-6 Year) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.8793	\$ 4.76
75th %ile (8-12 Years) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.8863	\$ 5.90
90th %ile Year (16-24) Estimates	68 - 158	Across All 4 VQ Bands	1st - 100th	100	0.894	\$ 7.25
VQ Band 1 Range 68 - 99.99	VQ Range	VQ Band	%ile Band	% Jobs in Range	R_{xy}	SE_e
Mean (Average) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.959	\$ 0.21
10th %ile (1st Year) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.9009	\$ 0.09
25th %ile (2-3 Year) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.9593	\$ 0.13
50th %ile (4-6 Year) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.9604	\$ 0.20
75th %ile (8-12 Years) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.9575	\$ 0.29
90th %ile Year (16-24) Estimates	68 - 99.99	Below Avg - Mid-Avg VQs	1st - 50th	50	0.9464	\$ 0.40
VQ Band 2 Range 100 - 108.99	VQ Range	VQ Band	%ile Band	% Jobs in Range	R_{xy}	SE_e
Mean (Average) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9856	\$ 0.28
10th %ile (1st Year) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9841	\$ 0.13
25th %ile (2-3 Year) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9859	\$ 0.18
50th %ile (4-6 Year) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9848	\$ 0.27
75th %ile (8-12 Years) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9837	\$ 0.39
90th %ile Year (16-24) Estimates	100 - 108.99	Mid-Avg - High-Avg VQs	50th - 67th	17	0.9822	\$ 0.55
VQ Band 3 Range 109 - 143.99	VQ Range	VQ Band	%ile Band	% Jobs in Range	R_{xy}	SE_e
Mean (Average) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.9234	\$ 1.30
10th %ile (1st Year) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.9296	\$ 0.93
25th %ile (2-3 Year) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.9222	\$ 1.10
50th %ile (4-6 Year) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.9221	\$ 1.32
75th %ile (8-12 Years) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.9097	\$ 1.67
90th %ile Year (16-24) Estimates	109 - 143.99	High-Avg - Very-High VQs	67th - 99th	32	0.8871	\$ 2.14
VQ Band 3 Range 144 - 158.00	VQ Range	VQ Band	%ile Band	% Jobs in Range	R_{xy}	SE_e
Mean (Average) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.6198	\$ 6.55
10th %ile (1st Year) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.549	\$ 4.19
25th %ile (2-3 Year) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.6317	\$ 6.40
50th %ile (4-6 Year) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.6607	\$ 8.69
75th %ile (8-12 Years) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.6583	\$ 10.70
90th %ile Year (16-24) Estimates	144 - 158.00	Extremely High VQs	99th - 100th	1	0.7061	\$ 11.86

Interpreting VQs, R_{xy} , Validity & Standard Error (SE_e) for Earning Capacity for a Job VQ within a VQ Band.

The Vocational Quotient for each Job in the MVQS McDOT Program is a unique indicator of overall Job Difficulty, relative to all other Jobs in the McDOT Program. The Mean VQ across all jobs in McDOT is 100, with a Standard Deviation of 15 VQ points. The average VQ Range is from 85 to 115, where 67% of all Job VQs fall. The overall VQ distribution ranges from a low of around 68.00 to a high of around 158.00. To determine the relevant R_{xy} , Predictive Validity Coefficient and SE_e Known Earning Capacity Error for a given Job VQ:

- 1) Search for the job in McDOT Report Outputs and identify the VQ for the selected job.
- 2) Locate the VQ Band (above) within which the identified VQ for the selected Job falls.
- 3) Decide which of the six possible estimates you wish to use within the VQ Band selected.
- 4) Locate the R_{xy} (Predictive Validity) Coefficient and the SE_e (Known Error Rate) at the end of the selected row.

Note 1: R_{xy} Predictive Validity Coefficients > 0.7000 fall in the very high to extremely high prediction estimates range.

Note 3: If two jobs in a given Labor Market have the same VQ, the Earning Capacity Predictions would be the same, as would be the SE_e .

Appendix B

MVQS VOCATIONAL ANALYSIS--CURRENT VOCATIONAL PROFILE								
VOCATIONAL PHYSICAL CAPACITIES								
EDUC DEVELOPMENT			Very Low	Below Average	Low Average	Middle Average	High Average	Above Average
	Reasoning (R)		---1---	---2---	---3---	---4---	---5---	---6---
	Math (M)		---1---	---2---	---3---	---4---	---5---	---6---
	Language (L)		---1---	---2---	---3---	---4---	---5---	---6---
APTITUDES			Very Low	Below Average	Low-Middle Average	High-Middle Average	Above Average	
	Spatial (S)		---1---	---2---	---3---	---4---	---5---	
	Form (P)		---1---	---2---	---3---	---4---	---5---	
	Clerical (Q)		---1---	---2---	---3---	---4---	---5---	
	Motor (K)		---1---	---2---	---3---	---4---	---5---	
	Finger (F)		---1---	---2---	---3---	---4---	---5---	
	Manual (M)		---1---	---2---	---3---	---4---	---5---	
	Eye/Hand/Foot (E)		---1---	---2---	---3---	---4---	---5---	
	Color Disc. (C)		---1---	---2---	---3---	---4---	---5---	
PHYSICAL CAPACITIES			Sed	Light	Medium	Heavy	Vy-Heavy	
		Poundage Range	5-10	10-20	20-50	50-100	100+	
	Strength Level (PD)		---1---	---2---	---3---	---4---	---5---	
Other Phys Abilities			Min.	Occas	Freq.	Const		
		Time Range	< 1 hr	1-3 hrs	3-5 hrs	5-8 hrs		
	Climb/Balance (PD2)		-----0-----		-----1-----			
	Stoop/Kneel (PD3)		-----0-----		-----1-----			
	Reach/Handle (PD4)		-----0-----		-----1-----			
	Talk/Hear (PD5)		-----0-----		-----1-----			
	See (PD6)		-----0-----		-----1-----			
ENVIRONMENTAL TOLER			Indoor	Outdoor	Both			
		Time Range	>75%	>75%	Equal			
	Work Location (EC1)		---1---	---2---	---3---			
Other Tolerances			Min	Occas	Freq	Const.		
		Time Range	< 1 hr	1-3 hrs	3-5 hrs	5-8 hrs		
	Extreme Cold (EC2)		-----0-----		-----1-----			
	Extreme Heat (EC3)		-----0-----		-----1-----			
	Wetness/Humidity (EC4)		-----0-----		-----1-----			
	Noise/Vibration (EC5)		-----0-----		-----1-----			
	Hazards (EC6)		-----0-----		-----1-----			
	Dusts/Fumes (EC7)		-----0-----		-----1-----			
*Min/Occas = 0 (< 1/3 time); Freq/Const = 1 (> 1/3 time)								

Appendix C

MVQS General			MVQS Aptitudes Plotting Table—General Adult Norms														
Adult Norms-97			McCroskey	General Education Development (GED)			Perception			Dexterity			Other		Adult Norms-97		
Approximations			Vocational	Reasoning	Math	Language	Spatial	Form	Clerical	Motor Coordination	Finger Dexterity	Manual Dexterity	Eye-Hand Foot	Color Disc	Approximations		
	%ile	GATB	Quotient (VQ)	R	M	L	S	P	Q	K	F	M	E	C	GATB	%ile	
	>98	>140		6	6	6	5	5	5	5	5	5	5	5	>140	>98	
	98	140	130	6	6	6	5	5	5	5	5	5	5	5	140	98	
V	97	139	129	6	6	6	5	5	5	5	5	5	5	5	139	97	V
E	97	138	129	6	6	6	5	5	5	5	5	5	5	5	138	97	E
R	97	137	128	6	6	6	5	5	5	5	5	5	5	5	137	97	R
Y	96	136	127	6	6	6	5	5	5	5	5	5	5	5	136	96	Y
	96	135	126	6	6	6	5	5	5	5	5	5	5	5	135	96	
H	96	134	126	6	6	6	5	5	5	5	5	5	5	5	134	96	H
I	95	133	125	6	6	6	5	5	5	5	5	5	5	5	133	95	I
G	95	132	124	6	6	6	5	5	5	5	5	5	5	5	132	95	G
H	95	131	124	6	6	6	5	5	5	5	5	5	5	5	131	95	H
	94	130	123	6	6	6	5	5	5	5	5	5	5	5	130	94	
A	93	129	122	6	6	6	5	5	5	5	5	5	5	5	129	93	A
B	92	128	121	6	6	6	5	5	5	5	5	5	5	5	128	92	B
O	91	127	120	6	6	6	5	5	5	5	5	5	5	5	127	91	O
V	90	126	119	6	6	6	5	5	5	5	5	5	5	5	126	90	V
E	89	125	118	6	6	6	5	5	5	5	5	5	5	5	125	89	E
	88	124	118	6	6	6	5	5	5	5	5	5	5	5	124	88	
A	87	123	117	6	6	6	5	5	5	5	5	5	5	5	123	87	A
V	86	122	116	6	6	6	5	5	5	5	5	5	5	5	122	86	V
G	85	121	116	6	6	6	5	5	5	5	5	5	5	5	121	85	G
	84	120	115	6	6	6	5	5	5	5	5	5	5	5	120	84	
	83	119	114	6	6	6	5	5	5	5	5	5	5	5	119	83	
H	82	118	113	6	6	6	5	5	5	5	5	5	5	5	118	82	H
I	81	117	113	5	5	5	5	5	5	5	5	5	5	5	117	81	I
G	79	116	112	5	5	5	4	4	4	4	4	4	4	4	116	79	G
H	77	115	111	5	5	5	4	4	4	4	4	4	4	4	115	77	H
	75	114	110	5	5	5	4	4	4	4	4	4	4	4	114	75	
A	73	113	109	5	5	5	4	4	4	4	4	4	4	4	113	73	A
V	71	112	108	5	5	5	4	4	4	4	4	4	4	4	112	71	V
G	70	111	108	5	5	5	4	4	4	4	4	4	4	4	111	70	G
	68	110	107	5	5	5	4	4	4	4	4	4	4	4	110	68	
H	66	109	106	5	5	5	4	4	4	4	4	4	4	4	109	66	H
I	63	108	105	5	5	5	4	4	4	4	4	4	4	4	108	63	I
G	61	107	104	5	5	5	4	4	4	4	4	4	4	4	107	61	G
H	58	106	103	5	5	5	4	4	4	4	4	4	4	4	106	58	H
	57	105	102	4	4	4	4	4	4	4	4	4	4	4	105	57	
M	55	104	102	4	4	4	4	4	4	4	4	4	4	4	104	55	M
I	54	103	101	4	4	4	4	4	4	4	4	4	4	4	103	54	I
D	53	102	101	4	4	4	4	4	4	4	4	4	4	4	102	53	D
	52	101	101	4	4	4	4	4	4	4	4	4	4	4	101	52	
	50	100	100	4	4	4	4	4	4	4	4	4	4	4	100	50	
	48	99	99	4	4	4	4	3	3	3	3	3	3	3	99	48	
L	47	98	99	4	4	4	4	3	3	3	3	3	3	3	98	47	L
O	46	97	98	4	4	4	4	3	3	3	3	3	3	3	97	46	O
W	45	96	98	4	4	4	4	3	3	3	3	3	3	3	96	45	W
	42	95	97	4	4	4	4	3	3	3	3	3	3	3	95	42	
M	41	94	96	3	3	3	3	3	3	3	3	3	3	3	94	41	M
I	39	93	96	3	3	3	3	3	3	3	3	3	3	3	93	39	I
D	37	92	95	3	3	3	3	3	3	3	3	3	3	3	92	37	D
	34	91	94	3	3	3	3	3	3	3	3	3	3	3	91	34	
	32	90	93	3	3	3	3	3	3	3	3	3	3	3	90	32	
	30	89	92	3	3	3	3	3	3	3	3	3	3	3	89	30	
L	29	88	92	3	3	3	3	3	3	3	3	3	3	3	88	29	L
O	27	87	91	3	3	3	3	3	3	3	3	3	3	3	87	27	O
W	25	86	90	3	3	3	3	3	3	3	3	3	3	3	86	25	W
	23	85	89	3	3	3	3	3	3	3	3	3	3	3	85	23	
A	21	84	88	3	3	3	3	3	3	3	3	3	3	3	84	21	A
V	19	83	87	3	3	3	3	3	3	3	3	3	3	3	83	19	V
G	18	82	86	2	2	2	2	2	2	2	2	2	2	2	82	18	G
	17	81	86	2	2	2	2	2	2	2	2	2	2	2	81	17	
	16	80	85	2	2	2	2	2	2	2	2	2	2	2	80	16	
B	15	79	84	2	2	2	2	2	2	2	2	2	2	2	79	15	B
E	14	78	84	2	2	2	2	2	2	2	2	2	2	2	78	14	E
L	13	77	83	2	2	2	2	2	2	2	2	2	2	2	77	13	L
O	12	76	82	2	2	2	2	2	2	2	2	2	2	2	76	12	O
W	11	75	81	2	2	2	2	2	2	2	2	2	2	2	75	11	W
	10	74	81	2	2	2	2	2	2	2	2	2	2	2	74	10	
A	9	73	80	2	2	2	2	2	2	2	2	2	2	2	73	9	A
V	8	72	79	2	2	2	2	2	2	2	2	2	2	2	72	8	V
G	7	71	78	2	2	2	2	2	2	2	2	2	2	2	71	7	G
	6	70	77	1	1	1	2	2	2	2	2	2	2	2	70	6	
	5	69	76	1	1	1	2	2	2	2	2	2	2	2	69	5	
V	5	68	76	1	1	1	2	2	2	2	2	2	2	2	68	5	V
E	5	67	75	1	1	1	2	2	2	2	2	2	2	2	67	5	E
R	4	66	74	1	1	1	2	2	2	2	2	2	2	2	66	4	R
Y	4	65	74	1	1	1	1	1	1	1	1	1	1	1	65	4	Y
	4	64	73	1	1	1	1	1	1	1	1	1	1	1	64	4	
L	3	63	72	1	1	1	1	1	1	1	1	1	1	1	63	3	L
O	3	62	71	1	1	1	1	1	1	1	1	1	1	1	62	3	O
W	3	61	71	1	1	1	1	1	1	1	1	1	1	1	61	3	W
	2	60	70	1	1	1	1	1	1	1	1	1	1	1	60	2	

Future ABVE Conference Information

2026 Annual Conference

March 11 – 15

Santa Fe, New Mexico

Visit www.abve.net to learn more about these
educational opportunities and other benefits of membership.