Integrated KSAO Framework for Substance Use Disorder Counselors

A Comprehensive Competency Map Derived from CASAC Textbook Analysis

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GitHub Repository: https://github.com/actonbp/KSAO_WFD

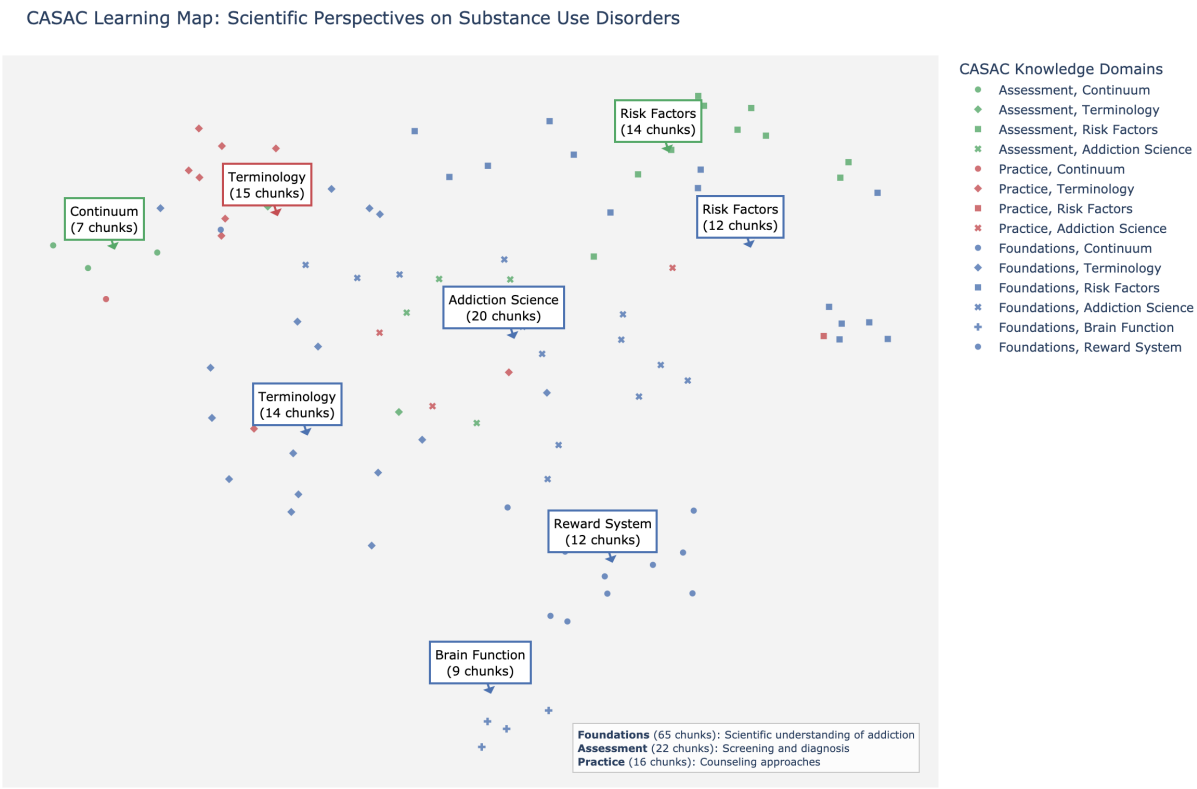

Figure 1: CASAC Learning Map

Executive Summary

This report documents a comprehensive multi-stage analysis of addiction counseling competencies using advanced AI techniques. By processing over 600 pages of textbook material through a sophisticated 5-stage pipeline, we've created a structured KSAO framework that maps professional competencies with unprecedented detail. This evidence-based approach has significant implications for workforce development, certification, training, and supervision in the addiction counseling field.

0.1 Analysis Information

Document Status: WORKING DRAFT (Version 1.0)
Last Updated: May 18, 2025
Source Document: Credentialed Alcoholism and Substance Abuse Counselor (CASAC) Textbook
Analysis Date: May 18, 2025
Model Used: Google Gemini 2.5 Pro Preview

Chapters Analyzed: Chapters 1-9 and Appendices (Complete Textbook Analysis)
Analysis Type: Comprehensive KSAO Extraction and Integration

Chapter 1

Introduction

This document presents the integrated Knowledge, Skills, Abilities, and Other Characteristics (KSAOs) framework for substance use disorder counselors, derived from a comprehensive analysis of the CASAC (Credentialed Alcoholism and Substance Abuse Counselor) certification textbook. The analysis includes a complete examination of all textbook materials (Chapters 1-9 and Appendices), using Google's Gemini 2.5 Pro model to systematically identify, categorize, and integrate professional competencies.

This framework is designed to serve as a foundation for evidence-based workforce development in addiction counseling, moving beyond traditional certification requirements to focus on actual competencies required for effective practice.

1.1 Acknowledgments

Note

The development of this KSAO framework was made possible through the contributions and support of numerous individuals and organizations. We would like to express our sincere gratitude to:

- The Substance Abuse and Mental Health Services Administration (SAMHSA) for their leadership in addiction workforce development
- The School of Management at Binghamton University
- Dr. Rory Eckardt and the Workforce Development Group at Binghamton University
- Practicing CASAC professionals who provided feedback on earlier versions of this framework
- Google for providing access to the Gemini 2.5 Pro model used in this analysis
- Anthropic for providing Claude Code assistance in documentation and report preparation
- The textbook authors and publishers who created the comprehensive educational materials analyzed in this project

Special thanks to colleagues who provided valuable feedback and insights throughout the development process.

1.2 Advanced Technical Pipeline: A Multi-Stage AI-Assisted KSAO Extraction Process

This framework was not generated by a single AI prompt. Instead, it is the result of a sophisticated, multi-stage technical pipeline involving sequential AI processing, human coordination, and system integration:

1.2.1 Stage 1: OCR Text Extraction

- **Input**: High-resolution TIFF scans of textbook chapters (11 files totaling hundreds of pages)
- **Process**: Each chapter was processed separately using Gemini 2.5 Pro's multimodal capabilities
  - Batch processing with 3-page batches to manage API constraints
  - Specialized OCR prompt engineered for textbook content with tables and images
  - Automated retry mechanisms for challenging pages
  - Background process management to handle timeouts and continuity
- **Output**: Structured text files for each chapter stored in `data/gemini_text_output/`
- **Technical details**: Executed via `gemini_ocr.py` and `process_chapter_batches.sh`

1.2.2 Stage 2: Chapter-Level KSAO Analysis

- **Input**: Extracted text files from Stage 1
- **Process**: Independent detailed analysis for each chapter
  - Each chapter isolated in temporary directory for focused processing
  - Specialized prompt for KSAO extraction with structured attribute requirements
  - Systematic thinking trace capture (up to 24,576 tokens per chapter)
  - Background process management with logging
- **Output**: For each chapter:
  - Detailed KSAO analysis document
  - Structured thinking process showing extraction methodology
  - Combined text reference document
- **Technical details**: Executed via `src/ksao/analyze_full_textbook.py`

1.2.3 Stage 3: KSAO Integration

- **Input**: All individual chapter KSAO analyses from Stage 2
- **Process**: Comprehensive integration across all chapter analyses
  - Identification of duplicate KSAOs across chapters
  - Resolution of classification inconsistencies
  - Synthesis of descriptions from multiple perspectives
  - Organization into dimensional framework
  - Mapping of hierarchical relationships and dependencies
- **Output**: Unified KSAO framework document with consistent structure and non-redundant competencies
- **Technical details**: Executed via `src/ksao/integrate_ksao_analyses.py`

1.2.4 Stage 4: Thinking Trace Meta-Analysis

- **Input**: All thinking process files from Stage 2
- **Process**: Meta-analysis of AI reasoning patterns across chapters
  - Identification of effective methodological approaches
  - Recognition of common patterns in KSAO extraction
  - Documentation of generalizable principles
- **Output**: Detailed methodological insights document
- **Technical details**: Executed via `src/ksao/analyze_thinking_traces.py`

1.2.5 Stage 5: Report Generation

- **Input**: Integrated framework and thinking trace analysis
- **Process**: Rendering of professional reports with enhanced styling
  - HTML reports with CSS styling
  - PDF reports via LaTeX/XeLaTeX
  - Interactive elements and responsive design

- **Output**: This document and companion methodology report
- **Technical details**: Executed via Quarto with `render_reports.sh`

This multi-stage approach ensures maximum accuracy, comprehensive coverage, and methodological transparency. The process can be replicated and extended to other professional domains and document sets.

Chapter 2

Quick Reference Guide

This section provides a high-level overview of the key KSAO dimensions identified in the framework. For practitioners, educators, and administrators who need a concise summary of the core competencies, this quick reference outlines the main domains of professional competence in substance use disorder counseling.

Core KSAO Dimensions for Substance Use Disorder Counselors

2.0.1 Knowledge Domains

- **Foundational Science**: Neurobiology, pharmacology, addiction mechanisms
- **Clinical Knowledge**: Assessment procedures, evidence-based interventions, treatment planning
- **Contextual Knowledge**: Healthcare systems, regulations, community resources
- **Specialized Populations**: Co-occurring disorders, cultural contexts, developmental considerations

2.0.2 Essential Skills

- **Assessment Skills**: Screening, comprehensive assessment, diagnostic reasoning
- **Intervention Skills**: Motivational techniques, counseling modalities, group facilitation
- **Documentation Skills**: Treatment planning, progress notes, discharge planning
- **Administrative Skills**: Case management, service coordination, referral processes
- **Relational Skills**: Alliance building, interpersonal effectiveness, boundary management

2.0.3 Core Abilities

- **Cognitive Abilities**: Critical thinking, clinical reasoning, problem-solving
- **Perceptual Abilities**: Observational acuity, pattern recognition, situational awareness
- **Communication Abilities**: Clear expression, active listening, adaptive communication
- **Self-Regulation**: Emotional management, stress tolerance, attentional control

2.0.4 Other Important Characteristics

- **Ethical Orientation**: Professional boundaries, confidentiality, client welfare prioritization
- **Cultural Responsiveness**: Cultural humility, bias awareness, contextual adaptation
- **Professional Identity**: Role clarity, self-reflection, commitment to development
- **Recovery Orientation**: Belief in change, hope facilitation, strength-based perspective

For detailed descriptions, classifications, and developmental relationships among these competencies, see the complete framework in the following sections.

Chapter 3

Methodology

3.1 Data Sources

The analysis was conducted on the following chapters from the CASAC textbook:

> **Note**
>
> 1. **Chapter 1**: Covering SUD terminology, neurobiology, models of addiction, risk factors, stages of addiction, common substances, recovery principles, and the Stages of Change model.
> 2. **Chapter 2**: Focusing on systems of care, telehealth, harm reduction, trauma-informed systems, social determinants of health, and related topics.
> 3. **Chapter 3**: Covering screening, assessment, and treatment planning processes.
> 4. **Chapter 4**: Focusing on counseling methods and therapeutic approaches.
> 5. **Chapter 5**: Examining case management and service coordination.
> 6. **Chapter 6**: Covering evidence-based practices in substance use disorder treatment.
> 7. **Appendices**: Including commonly used drugs, mental health conditions, medications, and IC&RC domains and job tasks.

3.2 Analysis Process

The analysis followed a rigorous five-step process:

> **Tip**
>
> 1. **OCR Text Extraction**: Used Gemini 2.5 Pro's multimodal capabilities to extract text from TIFF images of textbook pages.
> 2. **Chapter-Level KSAO Analysis**: Each chapter was analyzed individually to identify KSAOs, with documentation of the thinking process.
> 3. **KSAO Integration**: Individual chapter analyses were integrated into a comprehensive framework, resolving redundancies and inconsistencies.
> 4. **Thinking Trace Analysis**: Meta-analysis of the AI's reasoning process to identify patterns and methodological insights.
> 5. **Report Generation**: Creation of comprehensive reports documenting the framework and analysis methodology.

For each KSAO, the analysis identified:

- Clear name/title

- Complete description
- Classification (Knowledge, Skill, Ability, or Other characteristic)
- Specificity level (general or specialized)
- Related O*NET occupational categories
- Stability/malleability (fixed vs. developable)
- Explicit/tacit orientation (explicitly taught vs. tacitly acquired)
- Prerequisites or developmental relationships

! Important

Prompt Used for KSAO Extraction:
"You are an expert in curriculum development and competency mapping for substance use disorder (SUD) counselors. You need to analyze the following textbook content to identify the complete set of Knowledge, Skills, Abilities, and Other Characteristics (KSAOs) required for SUD counselors.
For each identified KSAO, provide: 1. A clear name/title 2. A complete description 3. The classification (Knowledge, Skill, Ability, or Other characteristic) 4. The specificity level (general or specialized) 5. Related O*NET occupational categories 6. Stability/malleability classification (whether this KSAO is relatively fixed or can be developed) 7. Explicit/tacit orientation (whether this is explicitly taught or tacitly acquired) 8. Prerequisites or developmental relationships (what must be learned before this) Additionally, identify any hierarchical structure among these KSAOs: - Which KSAOs represent dimensions vs. sub-dimensions - How KSAOs relate to each other in terms of development sequence - Which KSAOs serve as foundations for others"

Chapter 4

Integrated KSAO Framework

4.1 ONE COMPREHENSIVE KSAO FRAMEWORK FOR SUD COUNSELORS

4.1.1 CROSS-CUTTING FOUNDATIONAL COMPETENCIES

These KSAOs are fundamental and apply across all domains of SUD counseling practice.

1. **KSAO Name:** Ethical Conduct and Professionalism
   - **Description:** A commitment to and consistent application of professional codes of ethics (e.g., NAADAC, ACA, jurisdictional codes), legal mandates, and agency policies. This includes maintaining appropriate boundaries, ensuring client confidentiality, practicing self-awareness regarding personal values and biases, taking responsibility for ethical practice, identifying and responding to ethical breaches, and upholding the dignity and rights of clients. Includes understanding the moral foundations of ethics and the profession's role in self-regulation.
   - **Classification:** Other Characteristic (Commitment/Integrity), Knowledge (of codes/principles), Skill (in application/decision-making)
   - **Specificity Level:** General (foundational for all counseling, with SUD-specific applications)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (Knowledge/Skills are learned; Integrity is cultivated)
   - **Explicit/Tacit Orientation:** Both (Codes/principles are explicit; nuanced application and integrity are tacit)
   - **Prerequisites:** Moral reasoning; Foundational knowledge of professional roles.
2. **KSAO Name:** Cultural Humility, Competence, and DEI Advocacy
   - **Description:** An ongoing commitment to self-exploration and critique of one's own cultural biases. The knowledge of core DEI concepts (health equity, disparities, implicit bias, intersectionality) and the ability to acquire knowledge about diverse cultures. The skill to apply this understanding to provide culturally sensitive, affirming, and tailored services that respect clients' backgrounds, values, and beliefs, creating an inclusive and equitable environment. Includes advocating for DEI principles and health equity.
   - **Classification:** Other Characteristic (Humility/Commitment), Knowledge (of DEI/cultures), Skill (in application/advocacy)
   - **Specificity Level:** General (essential for all human services)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (an ongoing process of learning, self-reflection, and skill refinement)

- **Explicit/Tacit Orientation:** Both (Knowledge is explicit; humility and skillful application are deeply tacit)
- **Prerequisites:** Self-awareness; Openness to diversity and learning.

3. **KSAO Name:** Client-Centered and Strengths-Based Orientation
   - **Description:** A fundamental approach that prioritizes the client's unique needs, preferences, values, goals, and autonomy in all aspects of care. Involves focusing on and leveraging the client's strengths, capabilities, resources, and recovery capital to foster empowerment, self-efficacy, and self-determination.
   - **Classification:** Other Characteristic (Orientation/Value)
   - **Specificity Level:** General (core to modern behavioral health)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (can be cultivated through training and reflective practice)
   - **Explicit/Tacit Orientation:** Both (Principles are explicit; genuine application is tacit)
   - **Prerequisites:** Empathy; Respect for client autonomy.
4. **KSAO Name:** Effective Interpersonal and Therapeutic Communication Skills
   - **Description:** Proficiency in a range of communication techniques essential for building rapport, establishing a therapeutic alliance, and facilitating client change. This includes active listening, empathy, validation, clear and concise verbal/non-verbal expression, appropriate questioning (open-ended, clarifying), reflection of content and feeling, summarization, and using person-first, non-stigmatizing language.
   - **Classification:** Skill
   - **Specificity Level:** General (core to all counseling)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable
   - **Explicit/Tacit Orientation:** Both (Techniques are explicit; artful and attuned application is tacit)
   - **Prerequisites:** Basic language proficiency; Self-awareness; Empathy.
5. **KSAO Name:** Critical Thinking and Clinical Judgment
   - **Description:** The ability to analyze complex information objectively, evaluate multiple perspectives, identify assumptions and biases, synthesize data from various sources, and make sound, reasoned decisions in clinical, ethical, and professional contexts. This includes problem-solving and adapting to changing client needs or situations.
   - **Classification:** Ability
   - **Specificity Level:** General (essential for professional practice)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (can be honed with experience, supervision, and deliberate practice)
   - **Explicit/Tacit Orientation:** Both (Principles of logic can be explicit; application in complex scenarios is often tacit)
   - **Prerequisites:** Foundational knowledge base; Basic reasoning skills.
6. **KSAO Name:** Commitment to Lifelong Learning and Professional Development
   - **Description:** A professional orientation characterized by an ongoing dedication to enhancing knowledge and skills, staying current with new research, evidence-based practices, ethical standards, and legal requirements relevant to SUD counseling through continuing education, training, supervision, consultation, and self-reflection.
   - **Classification:** Other Characteristic
   - **Specificity Level:** General (expected in professional roles)
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (driven by motivation and professional standards)
   - **Explicit/Tacit Orientation:** Both (Explicit engagement in learning activities; tacit drive for improvement)
   - **Prerequisites:** Basic motivation for professional growth; Self-awareness.

4.1.2 DOMAIN 1: SCIENTIFIC PRINCIPLES OF SUBSTANCE USE AND CO-OCCURRING DISORDERS

7. **KSAO Name:** Knowledge of SUD Terminology, Models, and Concepts
   - **Description:** Comprehensive understanding of current SUD terminology (e.g., "SUD," "problematic substance use," severity specifiers, person-first language), historical and contemporary models of addiction (disease, moral, biopsychosocial), formal definitions of addiction/SUD, and core concepts (tolerance, withdrawal, craving, compulsion, neuroadaptation, continuum of use, recovery). Includes understanding the rationale for preferred terminology to reduce stigma.
   - **Classification:** Knowledge
   - **Specificity Level:** Specialized
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable
   - **Explicit/Tacit Orientation:** Explicit
   - **Prerequisites:** Basic literacy. Foundational for understanding all SUD-related content.
8. **KSAO Name:** Knowledge of the Neurobiology of SUDs
   - **Description:** In-depth understanding of how addictive substances affect brain structure and function, including basic neuroanatomy/physiology, key brain regions (basal ganglia, extended amygdala, prefrontal cortex) and neurotransmitters (e.g., dopamine) involved in reward, stress, and self-control; mechanisms of drug action; neuroadaptations; and neurobiological models of addiction stages (Binge/Intoxication, Withdrawal/Negative Affect, Preoccupation/Anticipation).
   - **Classification:** Knowledge
   - **Specificity Level:** Specialized
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable
   - **Explicit/Tacit Orientation:** Explicit
   - **Prerequisites:** Basic biology/chemistry concepts.
9. **KSAO Name:** Knowledge of Pharmacology and Characteristics of Common Substances of Abuse
   - **Description:** Comprehensive understanding of major drug classifications (opioids, CNS depressants, stimulants, cannabis, hallucinogens, etc.), including common commercial/street names, forms, methods of administration, intoxication effects, short/long-term health consequences, withdrawal syndromes, and relevant medication-assisted treatment options. Includes awareness of CSA drug schedules.
   - **Classification:** Knowledge
   - **Specificity Level:** Specialized
   - **Related O*NET Categories:** 21-1011.00, 21-1018.00
   - **Stability/Malleability:** Developable (requires ongoing learning as new substances emerge)
   - **Explicit/Tacit Orientation:** Explicit
   - **Prerequisites:** Basic understanding of pharmacology.
10. **KSAO Name:** Knowledge of Co-Occurring Mental and Physical Health Conditions
    - **Description:** Understanding of common mental health disorders (e.g., anxiety, mood, personality, trauma-related disorders, schizophrenia, ADHD) and physical health conditions (e.g., liver disease, HIV, Hepatitis, STDs, cardiovascular issues) that frequently co-occur with SUDs. Includes knowledge of their signs, symptoms, general treatment approaches, medication implications, and the complex interplay between SUDs and these conditions (bidirectional effects, "triple jeopardy").
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic knowledge of human physiology and psychology.
11. **KSAO Name:** Knowledge of Risk and Protective Factors for SUDs and Co-Occurring Conditions
    - **Description:** Understanding of multifaceted factors influencing vulnerability to SUDs and co-

occurring disorders, including genetic, biological, psychological (e.g., trauma, ACEs), social, environmental (e.g., family dynamics, peer influence, SDOH), and developmental factors (e.g., age of onset). Includes knowledge of protective factors that mitigate risk.
- **Classification:** Knowledge
- **Specificity Level:** Specialized
- **Related O*NET Categories:** 21-1011.00, 21-1018.00
- **Stability/Malleability:** Developable
- **Explicit/Tacit Orientation:** Explicit
- **Prerequisites:** Knowledge of SUD models and human development.

12. **KSAO Name:** Knowledge of Recovery Principles, Pathways, and Systems of Care
    - **Description:** Understanding of SAMHSA's definition and dimensions of recovery (Health, Home, Purpose, Community), the ten guiding principles of recovery, diverse pathways to recovery (including natural recovery, mutual-help, clinical treatment, harm reduction), and the structure/philosophy of Recovery-Oriented Systems of Care (ROSC). Includes familiarity with relevant legislation supporting recovery-oriented approaches.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic understanding of SUDs.
13. **KSAO Name:** Knowledge of NIDA Principles of Effective SUD Treatment
    - **Description:** Understanding of research-based principles for effective drug addiction treatment for adults and adolescents as outlined by the National Institute on Drug Abuse (NIDA), covering aspects like treatment availability, individualized care, duration, behavioral therapies, medications, co-occurring disorders, and monitoring.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic understanding of SUD treatment concepts.

4.1.3 DOMAIN 2: EVIDENCE-BASED SCREENING AND ASSESSMENT

14. **KSAO Name:** Skill in Client Engagement and Rapport Building
    - **Description:** Ability to establish a positive therapeutic connection with clients from the initial contact, fostering trust, mutual respect, and a safe environment conducive to disclosure and collaboration. Involves effective use of welcoming strategies, empathy, active listening, validation, and appropriate verbal/non-verbal communication.
    - **Classification:** Skill
    - **Specificity Level:** General (core to all counseling)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Techniques are explicit, artful connection is tacit)
    - **Prerequisites:** Effective Interpersonal and Therapeutic Communication Skills; Empathy.
15. **KSAO Name:** Knowledge of Screening and Assessment Processes and Instruments
    - **Description:** Understanding the purpose, methods, and components of comprehensive screening and assessment for SUDs and co-occurring conditions. Familiarity with various evidence-based screening tools (e.g., AUDIT, DAST, CAGE, ASSIST, trauma screens, MH screens) and assessment instruments (e.g., ASI, GAIN), including their appropriate use, administration, scoring considerations, and limitations.
    - **Classification:** Knowledge

- **Specificity Level:** Specialized
- **Related O*NET Categories:** 21-1011.00, 21-1018.00
- **Stability/Malleability:** Developable
- **Explicit/Tacit Orientation:** Explicit
- **Prerequisites:** Knowledge of SUDs, Co-occurring Conditions, and their signs/symptoms.

16. **KSAO Name:** Skill in Conducting Comprehensive Screening and Assessment
    - **Description:** Proficiency in using clinical interviewing techniques (including MI principles) and administering appropriate screening/assessment instruments to gather holistic biopsychosocial information. This includes assessing substance use patterns/history, co-occurring mental/physical health, trauma history, risk factors (suicide, violence, IPV, withdrawal), strengths, recovery capital, readiness for change, and cultural context. Involves synthesizing data from multiple sources (client report, collateral, observation).
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable (requires extensive training and supervised practice)
    - **Explicit/Tacit Orientation:** Both (Protocols are explicit; clinical interviewing and data integration are tacit)
    - **Prerequisites:** Knowledge of Screening/Assessment Processes & Instruments; Effective Interpersonal and Therapeutic Communication Skills; MI knowledge.
17. **KSAO Name:** Knowledge of Diagnostic Criteria for SUDs and Common Co-Occurring Disorders
    - **Description:** Thorough understanding of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) criteria for SUDs (including severity, remission, and substance-induced disorders) and familiarity with diagnostic criteria for common co-occurring mental health disorders. Awareness of ICD codes.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Knowledge of SUDs and Co-occurring Conditions.
18. **KSAO Name:** Skill in Diagnostic Formulation and Differential Diagnosis (within scope)
    - **Description:** Ability to synthesize assessment data to formulate diagnostic impressions for SUDs and potentially co-occurring MHDs (within scope of practice). Includes skill in differentiating between primary SUDs, substance-induced disorders, and independent co-occurring MHDs, often requiring longitudinal observation.
    - **Classification:** Skill
    - **Specificity Level:** Specialized (diagnostic impressions by SUD counselors, full diagnosis by licensed MHPs)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Criteria are explicit; clinical judgment is tacit)
    - **Prerequisites:** Knowledge of Diagnostic Criteria; Skill in Comprehensive Screening and Assessment; Critical Thinking.
19. **KSAO Name:** Knowledge of Drug and Alcohol Testing Methods and Interpretation
    - **Description:** Understanding of various biological testing methods (urine, breath, blood, saliva, hair), their detection windows, purposes in treatment (assessment, monitoring), screening vs. confirmatory tests, cut-off levels, and factors affecting results (false positives/negatives).
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic understanding of SUDs.

20. **KSAO Name:** Knowledge of Level of Care Placement Criteria (e.g., ASAM Criteria)
    - **Description:** Comprehensive understanding of standardized placement criteria (e.g., ASAM Criteria), including the multidimensional assessment framework and decision rules used to determine the appropriate level of care based on client needs and severity. Familiarity with LOCUS where applicable.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized (ASAM is industry standard)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Knowledge of SUD treatment continuum.
21. **KSAO Name:** Skill in Determining Appropriate Level of Care
    - **Description:** Ability to apply placement criteria (e.g., ASAM) and clinical judgment to match clients to the appropriate level of care that meets their immediate and ongoing needs, considering all six ASAM dimensions.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Criteria are explicit; judgment in application is tacit)
    - **Prerequisites:** Knowledge of LOC Placement Criteria; Skill in Comprehensive Screening and Assessment.
22. **KSAO Name:** Skill in Case Conceptualization and Interpretive Summary Writing
    - **Description:** Ability to synthesize diverse assessment findings into a coherent clinical understanding (case conceptualization) of the client's presenting problems, contributing factors, strengths, and needs. Skill in writing clear, concise, and comprehensive interpretive summaries or assessment reports that form the basis for treatment planning.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Structure can be explicit; insightful synthesis is tacit)
    - **Prerequisites:** Skill in Comprehensive Screening and Assessment; Critical Thinking; Effective Written Communication.

4.1.4 DOMAIN 3: EVIDENCE-BASED TREATMENT, COUNSELING, AND REFERRAL

23. **KSAO Name:** Knowledge of Evidence-Based Treatment (EBT) Modalities for SUDs and CODs
    - **Description:** Comprehensive understanding of various EBTs, including their theoretical underpinnings, core principles, key techniques, target populations, and empirical support. Includes Motivational Interviewing (MI), Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), Acceptance and Commitment Therapy (ACT), Contingency Management (CM), Community Reinforcement Approach (CRA), trauma-specific models (e.g., CBT for Trauma, CPT, PE, TF-CBT), family/couples therapies (FBT, BCT), and Twelve-Step Facilitation (TSF).
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable (requires ongoing learning as EBP landscape evolves)
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Foundational knowledge of SUDs and counseling principles.
24. **KSAO Name:** Skill in Applying Core EBT Techniques (e.g., MI, CBT)

- **Description:** Proficiency in implementing foundational techniques from core EBPs. For MI: embodying the spirit, using OARS, eliciting change talk, exploring/resolving ambivalence, MI-consistent planning. For CBT: facilitating cognitive restructuring, applying behavioral techniques (e.g., behavioral activation), teaching coping skills, structuring sessions with homework. (Deeper skills in specialized EBPs like DBT, ACT, trauma models, or family therapy often require advanced training).
- **Classification:** Skill
- **Specificity Level:** Specialized
- **Related O*NET Categories:** 21-1011.00, 21-1018.00
- **Stability/Malleability:** Developable (requires specific training, practice, and supervision for each EBP)
- **Explicit/Tacit Orientation:** Both (Techniques are explicit; artful and flexible application is tacit)
- **Prerequisites:** Knowledge of the specific EBP; Effective Interpersonal and Therapeutic Communication Skills.

25. **KSAO Name:** Knowledge of Medication-Assisted Treatment (MAT)
    - **Description:** Understanding the rationale, principles, FDA-approved medications (for AUD: acamprosate, disulfiram, naltrexone; for OUD: methadone, buprenorphine, naltrexone), mechanisms of action, benefits, risks, side effects, and service delivery systems (e.g., OTPs) for MAT. Includes knowledge of MAT considerations during pregnancy (NOWS) and the role of naloxone in overdose reversal.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic pharmacology knowledge.
26. **KSAO Name:** Skill in Supporting Clients Regarding MAT
    - **Description:** Ability to educate clients and families about MAT, address stigma and misconceptions, support client adherence, advocate for access, assist in overcoming barriers, and collaborate effectively with MAT prescribers. Includes educating on opioid overdose prevention and naloxone use.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both
    - **Prerequisites:** Knowledge of MAT; Effective Interpersonal and Therapeutic Communication Skills.
27. **KSAO Name:** Skill in Individualized Treatment Planning and Modification
    - **Description:** Ability to collaboratively develop, document, and regularly review/modify client-centered treatment plans based on assessment findings, client goals (SMART goals), EBTs, stage of change, and progress. Includes planning for recurrence, crisis management, and integrating holistic recovery elements.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Structure is explicit; tailoring and dynamic adjustment are tacit)
    - **Prerequisites:** Skill in SUD Assessment; Knowledge of EBTs; Knowledge of SMART goals.
28. **KSAO Name:** Skill in Individual, Group, and Family Counseling (within scope)
    - **Description:** Proficiency in delivering SUD counseling using appropriate modalities. Includes core counseling microskills, facilitating individual sessions, leading psychoeducational and process

groups (understanding group dynamics, stages, leadership skills), and engaging families/significant others in treatment and psychoeducation (within scope of practice and with client consent).
- **Classification:** Skill
- **Specificity Level:** Specialized
- **Related O*NET Categories:** 21-1011.00, 21-1018.00 (Family counseling may involve 21-1013.00 if specialized)
- **Stability/Malleability:** Developable
- **Explicit/Tacit Orientation:** Both
- **Prerequisites:** Effective Interpersonal and Therapeutic Communication Skills; Knowledge of counseling theories and EBTs.

29. **KSAO Name:** Skill in Psychoeducation Delivery
    - **Description:** Ability to effectively provide information and education to clients, families, and communities on SUDs, co-occurring disorders, treatment, recovery, coping skills, relapse prevention, health/wellness, and harm reduction. Involves adapting content and methods to diverse learning styles, cultural backgrounds, age, and linguistic abilities.
    - **Classification:** Skill
    - **Specificity Level:** Specialized (content is SUD-specific)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Content is explicit; delivery and engagement are tacit)
    - **Prerequisites:** Comprehensive knowledge of SUD topics; Effective Interpersonal and Therapeutic Communication Skills; Knowledge of learning principles.
30. **KSAO Name:** Skill in Crisis Intervention and De-escalation
    - **Description:** Ability to recognize, assess, and respond effectively to crisis situations (e.g., acute intoxication/withdrawal, suicidal ideation, aggression, relapse). Involves implementing verbal de-escalation techniques, applying crisis intervention models, ensuring safety, and making emergency referrals as needed.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable (requires specific training and practice)
    - **Explicit/Tacit Orientation:** Both (Protocols are explicit; application under pressure is tacit)
    - **Prerequisites:** Knowledge of crisis theory/de-escalation; Emotional regulation (counselor).
31. **KSAO Name:** Skill in Case Management, Care Coordination, and Referral
    - **Description:** Proficiency in assessing client needs across multiple life domains, developing comprehensive service plans, linking clients to appropriate community resources (housing, employment, medical, legal, peer support), advocating for client access, and monitoring service delivery and client progress. Includes interagency collaboration and effective referral processes (warm handoffs).
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00, 21-1022.00 (Social Workers)
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Processes can be explicit; navigating systems is tacit)
    - **Prerequisites:** Knowledge of community resources; Interpersonal communication; Organizational skills.
32. **KSAO Name:** Skill in Supporting Long-Term Recovery and Discharge Planning
    - **Description:** Ability to facilitate client-led recovery planning, addressing all four recovery domains (Health, Home, Purpose, Community). Includes developing comprehensive discharge plans with continuing care recommendations, relapse/recurrence prevention strategies, linkages to recovery supports (e.g., RCOs, mutual-help), and facilitating a therapeutic termination process.
    - **Classification:** Skill
    - **Specificity Level:** Specialized
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00

- **Stability/Malleability:** Developable
- **Explicit/Tacit Orientation:** Both
- **Prerequisites:** Knowledge of Recovery Principles; Skill in Treatment Planning.

4.1.5 DOMAIN 4: PROFESSIONAL, ETHICAL, AND LEGAL RESPONSIBILITIES

33. **KSAO Name:** Knowledge of Ethical Codes, Legal Mandates, and Professional Standards
    - **Description:** Comprehensive understanding of professional codes of ethics (e.g., NAADAC, ACA), federal and state laws/regulations (including confidentiality via HIPAA & 42 CFR Part 2, mandated reporting, client rights, duty to warn/protect, SUD as disability under ADA), scope of practice, professional boundaries, and agency policies relevant to SUD counseling.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized (42 CFR Part 2, specific SUD regulations)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable (requires ongoing updates)
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Basic understanding of legal and ethical systems.
34. **KSAO Name:** Skill in Ethical Decision-Making and Conduct
    - **Description:** Ability to identify ethical dilemmas, apply ethical decision-making models, consult appropriately, and act in accordance with ethical principles and legal requirements. Includes maintaining professional boundaries, managing dual relationships, appropriate self-disclosure, and addressing ethical breaches.
    - **Classification:** Skill
    - **Specificity Level:** General (process is universal, content is SUD-specific)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Models are explicit; nuanced application is tacit)
    - **Prerequisites:** Knowledge of Ethical Codes; Critical Thinking; Ethical Reasoning Ability.
35. **KSAO Name:** Skill in Confidentiality Management and Informed Consent
    - **Description:** Proficiency in implementing procedures to protect client privacy and confidentiality according to all applicable laws (especially 42 CFR Part 2). Includes obtaining and documenting informed consent for treatment, disclosures, and specific procedures, clearly explaining limits of confidentiality, and managing requests for information.
    - **Classification:** Skill
    - **Specificity Level:** Specialized (due to stringency of 42 CFR Part 2)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Procedures are explicit; communication is tacit)
    - **Prerequisites:** Knowledge of Ethical Codes & Legal Mandates.
36. **KSAO Name:** Skill in Clinical Documentation and Record Keeping
    - **Description:** Proficiency in creating and maintaining accurate, objective, concise, timely, and legally/ethically sound clinical records. This includes documenting assessments, treatment plans (SMART goals), progress notes (e.g., SOAP format), discharge summaries, crisis interventions, referrals, and communications, in compliance with all applicable standards (agency, regulatory, funder). Includes proficiency with EHR systems if used.
    - **Classification:** Skill
    - **Specificity Level:** Specialized (SUD content and specific regulatory requirements)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Formats are explicit; effective summarization and clinical reasoning reflected are tacit)

- **Prerequisites:** Knowledge of documentation standards; Effective Written Communication; Attention to Detail.

37. **KSAO Name:** Knowledge of Scope of Practice and Professional Competence
    - **Description:** Understanding the defined limits of one's professional role, responsibilities, and competencies based on education, training, experience, and credentials. Includes recognizing when client needs exceed one's scope or competence.
    - **Classification:** Knowledge
    - **Specificity Level:** Specialized (scopes vary for SUD counselors)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Understanding of professional roles.
38. **KSAO Name:** Skill in Utilizing Supervision and Consultation
    - **Description:** Actively seeking, preparing for, and effectively using clinical supervision and professional consultation to enhance counseling skills, address challenging cases, ensure ethical practice, manage countertransference, and promote self-care and professional growth.
    - **Classification:** Skill
    - **Specificity Level:** General (essential for professional practice)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both (Process can be explicit; relational aspects are tacit)
    - **Prerequisites:** Self-awareness; Openness to feedback.
39. **KSAO Name:** Skill in Client Advocacy and Rights Protection
    - **Description:** Ability to advocate for clients' rights, access to appropriate care, and fair treatment within service systems and the broader community. Includes informing clients of their rights and grievance procedures and assisting them in navigating these processes.
    - **Classification:** Skill
    - **Specificity Level:** Specialized (advocacy for SUD population needs)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Both
    - **Prerequisites:** Knowledge of client rights; Assertiveness; Communication skills.
40. **KSAO Name:** Knowledge of Professional Self-Care and Burnout Prevention
    - **Description:** Understanding the concepts of secondary trauma, compassion fatigue, and burnout, and knowledge of self-care strategies to maintain personal well-being and professional effectiveness.
    - **Classification:** Knowledge
    - **Specificity Level:** General (important for all helping professions)
    - **Related O*NET Categories:** 21-1011.00, 21-1018.00
    - **Stability/Malleability:** Developable
    - **Explicit/Tacit Orientation:** Explicit
    - **Prerequisites:** Self-awareness.

4.1.6 Hierarchical Structure Among KSAOs

I. Dimensions vs. Sub-dimensions:

The four IC&RC Performance Domains serve as the primary **Dimensions**. The KSAOs listed under "Cross-Cutting Foundational Competencies" are also foundational dimensions that permeate all others. Within each Domain, the listed KSAOs often represent **Sub-dimensions** or specific competencies. For example: * **Dimension: Domain 2 (Screening & Assessment)** * *Sub-dimension:* Client Engagement & Rapport Building (KSAO 14) * *Sub-dimension:* Knowledge of Assessment Processes & Instruments (KSAO 15) * *Sub-dimension:* Skill in Comprehensive Assessment (KSAO 16) * *Sub-dimension:* Diagnostic Knowledge & Skill (KSAOs 17, 18) * *Sub-dimension:* Level of Care Determination (KSAOs 20, 21) * **Dimension: Cross-**

Cutting Competencies * *Sub-dimension:* Ethical Practice (KSAO 1, which integrates Knowledge, Skill, and Other) * *Sub-dimension:* Cultural Practice (KSAO 2, which integrates K, S, and O) * *Sub-dimension:* Communication (KSAO 4)

II. Developmental Sequence (How KSAOs relate in terms of development):

1. **Foundational Level:**
   - **Other Characteristics** (e.g., Empathy, Ethical Integrity, Cultural Humility, Commitment to Learning - integrated into KSAOs 1, 2, 3, 6).
   - **Basic Knowledge** (e.g., SUD Terminology - KSAO 7; Ethical Principles - part of KSAO 1, 33).
   - **Core Interpersonal Skills** (e.g., Active Listening, Basic Empathy - part of KSAO 4).
2. **Intermediate Level (Core Professional Functioning):**
   - **Specialized Knowledge** (e.g., Neurobiology - KSAO 8; Pharmacology - KSAO 9; Co-occurring Conditions - KSAO 10; EBPs - KSAO 23; MAT - KSAO 25; Legal/Ethical specifics - KSAO 33).
   - **Applied Skills** in core domains (e.g., Comprehensive Assessment - KSAO 16; Treatment Planning - KSAO 27; Basic EBT Application - KSAO 24; Case Management - KSAO 31; Documentation - KSAO 36).
3. **Advanced Level (Integration and Nuance):**
   - **Refined Skills & Abilities** (e.g., Advanced Ethical Decision-Making - KSAO 34; Nuanced Cultural Adaptation of EBPs - integrated in KSAO 2 & 24; Complex Case Conceptualization - KSAO 22; Crisis Intervention with high-risk populations - KSAO 30; Effective Supervision Utilization - KSAO 38).
   - **Stronger Integration** of knowledge, skills, and self-awareness (e.g., Critical Thinking & Clinical Judgment - KSAO 5, applied across complex tasks).

III. Foundational KSAOs for Others (Examples):

- **KSAO 1 (Ethical Conduct) & KSAO 33 (Knowledge of Ethics/Legal)** are foundational for almost ALL other KSAOs involving client interaction, decision-making, and documentation.
- **KSAO 2 (Cultural Humility/Competence/DEI)** is foundational for ethical and effective application of all assessment, intervention, and communication KSAOs.
- **KSAO 4 (Effective Communication)** is foundational for KSAO 14 (Engagement), KSAO 16 (Assessment interviewing), KSAO 24 (EBT application), KSAO 29 (Psychoeducation), KSAO 31 (Case Management), etc.
- **KSAO 7 (Knowledge of SUD Terminology)** and **KSAO 8 (Knowledge of Neurobiology)** are foundational for effective Psychoeducation (KSAO 29) and for understanding the rationale behind many EBPs (KSAO 23).
- **KSAO 16 (Skill in Comprehensive Assessment)** is foundational for **KSAO 18 (Diagnostic Formulation)**, **KSAO 21 (Determining LOC)**, and **KSAO 27 (Treatment Planning)**.
- **KSAO 23 (Knowledge of EBPs)** is foundational for **KSAO 24 (Skill in Applying EBTs)**.
- **KSAO 5 (Critical Thinking & Clinical Judgment)** is foundational for effective assessment, diagnosis, treatment planning, ethical decision-making, and crisis intervention.

This integrated framework provides a comprehensive overview of the competencies required for an SUD counselor, organized logically and detailing the interrelationships between different KSAOs. It emphasizes that becoming a competent SUD counselor is a developmental process involving the acquisition and integration of diverse knowledge, skills, abilities, and professional characteristics.

Chapter 5

Hierarchical Structure and Developmental Relationships

This section presents the hierarchical organization of KSAOs, showing how they relate to each other in terms of:

1. **Dimensions vs. Sub-dimensions**: Major competency domains and their components
2. **Developmental Sequences**: The logical progression for acquiring competencies
3. **Foundational Relationships**: Which KSAOs serve as prerequisites for others

5.0.1 Hierarchical Structure Among KSAOs

I. Dimensions vs. Sub-dimensions:

The four IC&RC Performance Domains serve as the primary **Dimensions**. The KSAOs listed under "Cross-Cutting Foundational Competencies" are also foundational dimensions that permeate all others. Within each Domain, the listed KSAOs often represent **Sub-dimensions** or specific competencies. For example: * **Dimension: Domain 2 (Screening & Assessment)** * *Sub-dimension:* Client Engagement & Rapport Building (KSAO 14) * *Sub-dimension:* Knowledge of Assessment Processes & Instruments (KSAO 15) * *Sub-dimension:* Skill in Comprehensive Assessment (KSAO 16) * *Sub-dimension:* Diagnostic Knowledge & Skill (KSAOs 17, 18) * *Sub-dimension:* Level of Care Determination (KSAOs 20, 21) * **Dimension: Cross-Cutting Competencies** * *Sub-dimension:* Ethical Practice (KSAO 1, which integrates Knowledge, Skill, and Other) * *Sub-dimension:* Cultural Practice (KSAO 2, which integrates K, S, and O) * *Sub-dimension:* Communication (KSAO 4)

II. Developmental Sequence (How KSAOs relate in terms of development):

1. **Foundational Level:**
   - **Other Characteristics** (e.g., Empathy, Ethical Integrity, Cultural Humility, Commitment to Learning - integrated into KSAOs 1, 2, 3, 6).
   - **Basic Knowledge** (e.g., SUD Terminology - KSAO 7; Ethical Principles - part of KSAO 1, 33).
   - **Core Interpersonal Skills** (e.g., Active Listening, Basic Empathy - part of KSAO 4).
2. **Intermediate Level (Core Professional Functioning):**
   - **Specialized Knowledge** (e.g., Neurobiology - KSAO 8; Pharmacology - KSAO 9; Co-occurring Conditions - KSAO 10; EBPs - KSAO 23; MAT - KSAO 25; Legal/Ethical specifics - KSAO 33).
   - **Applied Skills** in core domains (e.g., Comprehensive Assessment - KSAO 16; Treatment Planning - KSAO 27; Basic EBT Application - KSAO 24; Case Management - KSAO 31; Documentation - KSAO 36).
3. **Advanced Level (Integration and Nuance):**

- **Refined Skills & Abilities** (e.g., Advanced Ethical Decision-Making - KSAO 34; Nuanced Cultural Adaptation of EBPs - integrated in KSAO 2 & 24; Complex Case Conceptualization - KSAO 22; Crisis Intervention with high-risk populations - KSAO 30; Effective Supervision Utilization - KSAO 38).
- **Stronger Integration** of knowledge, skills, and self-awareness (e.g., Critical Thinking & Clinical Judgment - KSAO 5, applied across complex tasks).

III. Foundational KSAOs for Others (Examples):

- **KSAO 1 (Ethical Conduct) & KSAO 33 (Knowledge of Ethics/Legal)** are foundational for almost ALL other KSAOs involving client interaction, decision-making, and documentation.
- **KSAO 2 (Cultural Humility/Competence/DEI)** is foundational for ethical and effective application of all assessment, intervention, and communication KSAOs.
- **KSAO 4 (Effective Communication)** is foundational for KSAO 14 (Engagement), KSAO 16 (Assessment interviewing), KSAO 24 (EBT application), KSAO 29 (Psychoeducation), KSAO 31 (Case Management), etc.
- **KSAO 7 (Knowledge of SUD Terminology)** and **KSAO 8 (Knowledge of Neurobiology)** are foundational for effective Psychoeducation (KSAO 29) and for understanding the rationale behind many EBPs (KSAO 23).
- **KSAO 16 (Skill in Comprehensive Assessment)** is foundational for **KSAO 18 (Diagnostic Formulation)**, **KSAO 21 (Determining LOC)**, and **KSAO 27 (Treatment Planning)**.
- **KSAO 23 (Knowledge of EBPs)** is foundational for **KSAO 24 (Skill in Applying EBTs)**.
- **KSAO 5 (Critical Thinking & Clinical Judgment)** is foundational for effective assessment, diagnosis, treatment planning, ethical decision-making, and crisis intervention.

This integrated framework provides a comprehensive overview of the competencies required for an SUD counselor, organized logically and detailing the interrelationships between different KSAOs. It emphasizes that becoming a competent SUD counselor is a developmental process involving the acquisition and integration of diverse knowledge, skills, abilities, and professional characteristics.

Chapter 6

Applications for Workforce Development

The integrated KSAO framework presented in this document can be applied in multiple ways to enhance workforce development in the field of substance use disorder counseling:

> **Note**
>
> 1. **Curriculum Design**: Educational institutions can use this framework to design comprehensive training programs that systematically address all required competencies.
> 2. **Certification Standards**: Certification bodies can align requirements with evidence-based KSAOs rather than solely focusing on knowledge or hours of training.
> 3. **Professional Development**: Practitioners can identify gaps in their skill set and target specific areas for improvement.
> 4. **Supervision Focus**: Clinical supervisors can use the framework to provide structured guidance for developing counselors.
> 5. **Assessment Tools**: The framework provides a foundation for developing assessment instruments to measure counselor competency.

Chapter 7

Conclusion

This integrated KSAO framework represents a significant advancement in understanding the competencies required for effective substance use disorder counseling. By systematically extracting and organizing KSAOs from authoritative textbook material, this project demonstrates how AI-assisted analysis can support evidence-based workforce development.

The framework highlights the complex, multifaceted nature of SUD counseling, requiring a diverse set of knowledge areas, clinical and interpersonal skills, cognitive abilities, and professional characteristics. It also reveals the developmental nature of these competencies, with clear progression pathways and foundational relationships.

7.1 Impact and Implications

This KSAO framework offers several significant benefits to the field of substance use disorder counseling:

Tip

1. **Evidence-Based Training Programs**: Educational institutions can redesign curricula to systematically address all required competencies in a developmentally appropriate sequence.
2. **Competency-Based Credentialing**: Certification bodies can transition from hour-based requirements to demonstrable competency assessments.
3. **Targeted Professional Development**: Practitioners can identify specific growth areas based on the framework's hierarchical structure.
4. **Enhanced Clinical Supervision**: Supervisors can use the framework to provide structured, competency-focused guidance.
5. **Workforce Development Policy**: Policymakers can leverage this evidence-based approach to inform funding and program development decisions.
6. **Cross-Disciplinary Integration**: The framework highlights connections between addiction counseling and related fields, supporting integrated behavioral health approaches.

The multi-stage AI-assisted methodology demonstrated in this project can be extended to other healthcare and social service domains, potentially transforming workforce development approaches across multiple professions.

7.2 Feedback and Future Directions

This KSAO framework represents an ongoing effort to advance evidence-based workforce development in addiction counseling. As a working draft, it will benefit from continued refinement and expansion. We

welcome feedback and contributions from practitioners, educators, researchers, and policymakers.

Planned Future Developments

1. **Validation Studies**: Empirical validation of the framework with practicing counselors
2. **Assessment Tools**: Development of competency assessment instruments based on the framework
3. **Curriculum Templates**: Creation of modular curriculum designs aligned to framework dimensions
4. **Cross-Domain Applications**: Expansion to related behavioral health professions
5. **Interactive Tools**: Development of self-assessment and professional development planning tools
6. **Longitudinal Analysis**: Tracking framework evolution as the field advances

To provide feedback or contribute to this ongoing project, please visit the GitHub repository or contact the primary author directly.

7.3 How to Cite This Work

When referencing this framework in academic or professional contexts, please use the following citation:

```
Acton, B. (2025). Integrated KSAO Framework for Substance Use Disorder Counselors:
A Comprehensive Competency Map Derived from CASAC Textbook Analysis.
Binghamton University. https://github.com/actonbp/KSAO_WFD
```

7.3.1 Related Resources

- NAADAC: The Association for Addiction Professionals
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- International Certification & Reciprocity Consortium (IC&RC)
- Addiction Technology Transfer Center (ATTC) Network
- Center for Substance Abuse Treatment (CSAT)
- Journal of Substance Abuse Treatment

Chapter 8

Glossary of Key Terms

Essential Terminology for Understanding the KSAO Framework

Knowledge: Organized body of information, usually factual or procedural in nature, that is directly applicable to job performance (e.g., understanding addiction neurobiology, pharmacology).
Skills: Developed proficiencies and competencies needed to perform specific tasks (e.g., motivational interviewing, screening assessment administration).
Abilities: Enduring capabilities that enable a person to perform a physical or mental act (e.g., critical thinking, interpersonal sensitivity).
Other Characteristics: Additional attributes that influence job performance such as values, attitudes, personality traits, and interests (e.g., ethical orientation, cultural sensitivity).
KSAO Framework: An organizational structure that categorizes and relates the Knowledge, Skills, Abilities, and Other characteristics required for effective job performance.
Competency Mapping: The process of identifying and documenting the specific competencies that define successful performance in a particular job role or organization.
Developmental Sequence: The logical progression in which competencies should be acquired for optimal learning and performance.
Hierarchical Structure: The organization of KSAOs into higher-order dimensions and more specific sub-dimensions.
Explicit Knowledge/Skills: Competencies that can be directly taught through formal instruction and documented in explicit procedures.
Tacit Knowledge/Skills: Competencies that are difficult to articulate and are typically acquired through experience and observation.
Malleability/Stability: The degree to which a competency can be developed through training (malleable) versus being relatively fixed.
O*NET: The Occupational Information Network, a comprehensive database of worker attributes and job characteristics.
Motivational Interviewing: A counseling approach that helps people resolve ambivalent feelings and insecurities to find internal motivation for behavior change.
Evidence-Based Practices (EBPs): Interventions and approaches that have been scientifically evaluated and found to produce consistent, beneficial outcomes.
Substance Use Disorder (SUD): A medical condition characterized by clinically significant impairment or distress caused by the recurrent use of alcohol or other drugs.
CASAC: Credentialed Alcoholism and Substance Abuse Counselor certification, a professional credential for addiction counselors.

Chapter 9

Appendix: Technical Implementation

This appendix provides the actual code implementation for key components of the technical pipeline. These scripts demonstrate the sophisticated multi-stage approach used to extract, analyze, and integrate the KSAO framework.

9.1 A1. OCR Text Extraction

The OCR text extraction was performed using Google's Gemini 2.5 Pro multimodal capabilities via the following Python script:

```python
#!/usr/bin/env python
import os
import base64
import argparse
from pathlib import Path
from PIL import Image
import io
from google import genai
from dotenv import load_dotenv
import time
import json
import glob

# Load environment variables from .env file (contains GEMINI_API_KEY)
load_dotenv()

# Get the API key
api_key = os.environ.get("GEMINI_API_KEY")
if not api_key:
    raise ValueError("GEMINI_API_KEY environment variable not found. Please set it in your .env file.

# Initialize the Gemini API client
client = genai.Client(api_key=api_key)

# Current model version
GEMINI_MODEL = "gemini-2.5-pro-preview-05-06"  # Updated to use Gemini 2.5 Pro

# Process a single page and extract text using Gemini API
def extract_text_from_page(img):
    """
    Extract text from a single image using the Gemini 2.5 Pro API.

    Args:
        img: PIL Image object containing the page to process

    Returns:
        String containing the extracted text
    """
    # Convert the image to base64
    base64_image = image_to_base64(img)

    # Create the request content with the image
    contents = {
        "parts": [
            {
                "inline_data": {
                    "mime_type": "image/png",
                    "data": base64_image
                }
            },
            {
                "text": "Your primary goal is to extract ALL text from this image with the highest po
            }
        ]
    }
```



```python
    # Call the Gemini API with enhanced configuration
    try:
        # The API changed - use the correct method for current Gemini API
```

```
#!/bin/bash

# This script processes OCR on TIFF files in batches to avoid timeouts
# Usage: ./process_chapter_batches.sh <chapter_filename> <batch_size>
# Example: ./process_chapter_batches.sh "Chapter 3.tif" 5

if [ "$#" -lt 1 ]; then
    echo "Usage: $0 <chapter_filename> [batch_size]"
    echo "Example: $0 \"Chapter 3.tif\" 5"
    exit 1
fi

CHAPTER_FILE="$1"
BATCH_SIZE="${2:-5}"  # Default batch size of 5 pages if not provided

# Check if the file exists
if [ ! -f "Scan/$CHAPTER_FILE" ]; then
    echo "Error: File Scan/$CHAPTER_FILE does not exist"
    exit 1
fi

# Get the number of pages in the TIFF file
# You need to install imagemagick for this: brew install imagemagick
NUM_PAGES=$(identify -format "%n\n" "Scan/$CHAPTER_FILE" | head -1)
echo "$CHAPTER_FILE has $NUM_PAGES pages"

# Clean filename for output
CLEAN_NAME=$(echo "$CHAPTER_FILE" | sed 's/.tif$//;s/ /_/g')

# Calculate number of batches
NUM_BATCHES=$(( (NUM_PAGES + BATCH_SIZE - 1) / BATCH_SIZE ))
echo "Will process in $NUM_BATCHES batches of $BATCH_SIZE pages each"

# Process each batch
for (( i=0; i<NUM_BATCHES; i++ )); do
    START_PAGE=$(( i * BATCH_SIZE + 1 ))
    END_PAGE=$(( (i + 1) * BATCH_SIZE ))

    # Ensure last batch doesn't exceed total pages
    if [ $END_PAGE -gt $NUM_PAGES ]; then
        END_PAGE=$NUM_PAGES
    fi

    echo "======================================="
    echo "Processing batch $((i+1))/$NUM_BATCHES: Pages $START_PAGE to $END_PAGE"
    echo "======================================="

    python3 gemini_ocr.py --single-chapter "$CHAPTER_FILE" \
                          --input-dir Scan \
                          --output-dir "data/gemini_text_output" \
                          --start-page $START_PAGE \
                          --end-page $END_PAGE

    # Add delay between batches to avoid rate limiting
    if [ $((i+1)) -lt $NUM_BATCHES ]; then
        echo "Sleeping for 10 seconds before next batch..."
        sleep 10
    fi
done
```

```python
#!/usr/bin/env python3
import os
import json
import argparse
from pathlib import Path
from dotenv import load_dotenv
from google import genai
import time

# Load environment variables
load_dotenv()

# Configure the Gemini API client
api_key = os.environ.get("GEMINI_API_KEY")
if not api_key:
    raise ValueError("GEMINI_API_KEY environment variable not found. Please set it in your .env file.

# Initialize the client
genai_client = genai.Client(api_key=api_key)

def analyze_full_textbook(combined_text, output_file):
    """
    Analyze the full textbook text using Gemini 2.5 Pro to extract KSAOs.

    Args:
        combined_text: The combined text from all chapters
        output_file: Path to save the analysis results

    Returns:
        The analysis text or None if an error occurred
    """

    prompt = """
    You are an expert in curriculum development and competency mapping for substance use disorder (SU
    You need to analyze the following textbook content to identify the complete set of Knowledge, Ski
    and Other Characteristics (KSAOs) required for SUD counselors.

    For each identified KSAO, provide:
    1. A clear name/title
    2. A complete description
    3. The classification (Knowledge, Skill, Ability, or Other characteristic)
    4. The specificity level (general or specialized)
    5. Related O*NET occupational categories
    6. Stability/malleability classification (whether this KSAO is relatively fixed or can be develop
    7. Explicit/tacit orientation (whether this is explicitly taught or tacitly acquired)
    8. Prerequisites or developmental relationships (what must be learned before this)

    Additionally, identify any hierarchical structure among these KSAOs:
    - Which KSAOs represent dimensions vs. sub-dimensions
    - How KSAOs relate to each other in terms of development sequence
    - Which KSAOs serve as foundations for others

    I NEED YOU TO DOCUMENT YOUR COMPLETE THINKING PROCESS IN DETAIL:
    1. First, carefully read through the textbook content and note key concepts related to KSAOs
    2. For each section or chapter, identify explicit and implicit competencies
    3. Categorize each KSAO, considering its nature (K, S, A, or O)
    4. Analyze relationships between KSAOs to identify hierarchies and dependencies
    5. Evaluate each KSAO's specificity, malleability, and how it's typically acquired
    6. Organize all findings into a systematic framework
```

```python
#!/usr/bin/env python3
import os
import argparse
import json
from pathlib import Path
from dotenv import load_dotenv
from google import genai
import time

# Load environment variables
load_dotenv()

# Configure the Gemini API client
api_key = os.environ.get("GEMINI_API_KEY")
if not api_key:
    raise ValueError("GEMINI_API_KEY environment variable not found. Please set it in your .env file.

# Initialize the client
genai_client = genai.Client(api_key=api_key)

# Current model version
GEMINI_MODEL = "gemini-2.5-pro-preview-05-06"  # Using same model as other scripts

def gather_chapter_analyses(input_dir="output/full_analysis"):
    """Gather all individual chapter KSAO analyses."""
    input_path = Path(input_dir)

    if not input_path.exists():
        print(f"Error: Input directory {input_dir} not found!")
        return None

    # Find all KSAO analysis files (excluding thinking_process and combined_text files)
    analysis_files = [f for f in input_path.glob("*_ksao_analysis.txt")
                      if not f.name.endswith("_thinking_process.txt")
                      and not f.name.endswith("_combined_text.txt")
                      and not "integrated" in f.name]

    if not analysis_files:
        print(f"No chapter analysis files found in {input_dir}")
        return None

    print(f"Found {len(analysis_files)} chapter analysis files")

    # Combine all chapter analyses with clear separation
    combined_analyses = ""
    for file_path in sorted(analysis_files):
        chapter_name = file_path.stem.replace("_ksao_analysis", "")
        print(f"Adding analysis for {chapter_name}...")

        with open(file_path, 'r', encoding='utf-8') as f:
            analysis_text = f.read()
            combined_analyses += f"\n\n### ANALYSIS FOR {chapter_name} ###\n\n{analysis_text}\n\n"

    return combined_analyses

def integrate_ksao_analyses(combined_analyses, output_file):
    """
    Use Gemini to integrate separate chapter KSAO analyses into a cohesive framework.
```

```python
#!/usr/bin/env python3
import os
import argparse
import json
from pathlib import Path
from dotenv import load_dotenv
from google import genai
import time

# Load environment variables
load_dotenv()

# Configure the Gemini API client
api_key = os.environ.get("GEMINI_API_KEY")
if not api_key:
    raise ValueError("GEMINI_API_KEY environment variable not found. Please set it in your .env file.

# Initialize the client
genai_client = genai.Client(api_key=api_key)

# Current model version
GEMINI_MODEL = "gemini-2.5-pro-preview-05-06"

def gather_thinking_traces(input_dir="output/full_analysis"):
    """Gather all thinking traces from chapter analyses."""
    input_path = Path(input_dir)

    if not input_path.exists():
        print(f"Error: Input directory {input_dir} not found!")
        return None

    # Find all thinking process files
    thinking_files = [f for f in input_path.glob("*_thinking_process.txt")
                      if not "integrated" in f.name]

    if not thinking_files:
        print(f"No thinking process files found in {input_dir}")
        return None

    print(f"Found {len(thinking_files)} thinking process files")

    # Combine all thinking traces with clear separation
    combined_traces = ""
    for file_path in sorted(thinking_files):
        chapter_name = file_path.stem.replace("_ksao_analysis_thinking_process", "")
        print(f"Adding thinking trace for {chapter_name}...")

        with open(file_path, 'r', encoding='utf-8') as f:
            thinking_text = f.read()
            combined_traces += f"\n\n### THINKING TRACE FOR {chapter_name} ###\n\n{thinking_text}\n\n

    return combined_traces

def analyze_thinking_traces(combined_traces, output_file):
    """
    Use Gemini to analyze thinking traces across chapters and create a summary document.

    Args:
        combined_traces: String containing all thinking traces
```

```
#!/bin/bash

# This script renders both Quarto reports using enhanced templates

echo "==== Rendering Enhanced KSAO Framework Report ===="
echo "Generating HTML..."
cd docs
/usr/local/bin/quarto render ksao_framework_report.qmd --output ksao_framework_report.html
echo "Generating PDF with xelatex..."
/usr/local/bin/quarto render ksao_framework_report.qmd --to pdf --output ksao_framework_report.pdf --

echo "==== Rendering Enhanced Thinking Trace Analysis Report ===="
echo "Generating HTML..."
/usr/local/bin/quarto render thinking_trace_analysis_report.qmd --output thinking_trace_analysis_repo
echo "Generating PDF with xelatex..."
/usr/local/bin/quarto render thinking_trace_analysis_report.qmd --to pdf --output thinking_trace_anal
cd ..

echo "==== Reports Generated ===="
echo "KSAO Framework Report: docs/ksao_framework_report.html and docs/ksao_framework_report.pdf"
echo "Thinking Trace Analysis Report: docs/thinking_trace_analysis_report.html and docs/thinking_trac
```