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Psychometric Validity and Standardization of a Vocational and Educational Guidance Scale Based on the CPI

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A B S T R A C T

Purpose: The present study aimed to develop, examine the validity and reliability, and conduct a preliminary norming of an educational-vocational guidance questionnaire based on the California Psychological Inventory (CPI). The instrument was designed to assess personality, motivational, identity-related, value-based, social, and adjustment characteristics relevant to educational and career decision-making.

Methods and Materials: This applied study employed a descriptive-correlational psychometric design. First, 480 CPI items were reviewed; after extraction, refinement, and expert classification, 201 items were retained and organized into 12 subscales. The study population consisted of faculty members in psychology, counseling, and educational sciences, as well as counselors and specialists in the education sector, from which 700 participants were selected through random sampling. For content validity assessment, the opinions of 120 experts were collected, and the Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated. Internal consistency was evaluated using Cronbach's alpha.

Findings: The findings indicated that the questionnaire was structured into 12 subscales: Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to Experience, Motivation and Self-Concept, Psychopathology and Maladaptive Behaviors, Values and Socio-Moral Orientations, Coping and Defensive Styles, Identity and Independence, Introversion, and Courage and Risk-Taking. The total CVR and CVI were 0.8918 and 0.9033, respectively. The overall Cronbach's alpha was 0.9033, and the alpha coefficients of the subscales ranged from 0.837 to 0.897, indicating satisfactory internal consistency.

Conclusion: The results suggest that the CPI-based educational-vocational guidance questionnaire possesses acceptable content validity and high reliability and can be used as a valid instrument in educational and vocational counseling. Since full normative data were not reported in the available text, the norming aspect of the study should be considered preliminary and requires further investigation.

Keywords: *California Psychological Inventory, Content validity, Cronbach's alpha, Educational-vocational guidance, Norming, Psychometrics, Reliability*

1. Introduction

Educational and vocational decision-making is among the most consequential developmental processes individuals encounter during adolescence and early adulthood. Decisions concerning a field of study, academic specialization, occupational direction, and future professional role can influence not only educational achievement and employment prospects but also psychological well-being, social participation, identity development, and overall life satisfaction. Although these decisions are sometimes treated as discrete choices made at specific educational transitions, contemporary career-development perspectives regard them as parts of a continuous and dynamic process through which individuals interpret their characteristics, evaluate environmental opportunities, construct future goals, and establish a coherent relationship between who they are and the roles they intend to assume. Educational–vocational guidance must therefore extend beyond the provision of information about academic programs or occupations and incorporate a systematic assessment of personality characteristics, motives, values, self-perceptions, coping capacities, interpersonal tendencies, and developmental readiness (Arhipova, 2024; Gercek & Ozveren, 2026; Hutson et al., 2023; Ningrum & Mulawarman, 2024; Sica et al., 2023). Without such a multidimensional understanding, guidance may be based on incomplete information and may consequently produce educational or occupational choices that are poorly aligned with the individual's psychological characteristics and contextual circumstances.

The complexity of educational and career choice is particularly apparent in contemporary societies, where rapid technological development, changes in labor-market structures, expanding educational pathways, and uncertain employment conditions have made future planning increasingly demanding. Individuals are often required to make decisions in contexts where occupational roles are changing, traditional career trajectories are becoming less predictable, and the consequences of choosing one pathway cannot be fully anticipated. Knight's conceptual distinction between measurable risk and fundamental uncertainty is relevant to educational and occupational decision-making because individuals frequently choose among alternatives without possessing complete knowledge of their future outcomes (Knight, 1921). In such circumstances, effective guidance requires more than matching academic performance with available programs; it requires identifying the psychological resources through which individuals tolerate uncertainty, evaluate risks, respond to opportunities, and commit themselves to long-term goals. Consequently, courage, decisiveness, flexibility, self-confidence, and calculated risk-taking may become important elements of educational and vocational adjustment.

Foundational theories of personality provide an essential basis for understanding individual differences in educational and occupational preferences. Jung's theory of psychological types introduced a systematic distinction between orientations such as extraversion and introversion and suggested that individuals differ in the direction of their psychological energy, characteristic modes of perception, and preferred ways of interacting with the world (Jung, 1921). This distinction remains important in guidance contexts because educational and occupational environments vary considerably in their demands for social interaction, independent concentration, verbal expression, reflection, stimulation, and interpersonal influence. Eysenck later provided a biologically oriented account of major personality dimensions, particularly extraversion, neuroticism, and psychoticism, emphasizing that enduring behavioral tendencies are partly rooted in individual differences in physiological reactivity and arousal (Eysenck, 1967). From this perspective, students may differ systematically in their tolerance for stimulation, emotional responsiveness, sociability, and adaptation to demanding environments, and these differences may affect the educational and professional contexts in which they are most likely to function effectively.

The development of trait psychology further strengthened the scientific assessment of stable individual differences. Goldberg's lexical studies provided influential support for the Big Five structure as a broad taxonomy of personality, comprising extraversion, agreeableness, conscientiousness, emotional stability or neuroticism, and openness to experience (Goldberg, 1990). Costa and McCrae subsequently operationalized these dimensions through the NEO inventories and demonstrated that the five-factor model could provide a comprehensive framework for describing normal personality characteristics across adulthood (Costa & McCrae, 1992). These dimensions are particularly relevant to educational–vocational guidance because they reflect patterns of social engagement, cooperation, self-regulation, emotional adjustment, intellectual curiosity, and receptivity to new experiences. Extraversion may facilitate participation in socially demanding, persuasive, leadership-oriented, or collaborative

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environments, whereas introversion may support sustained concentration and independent work in analytical, technical, creative, or research-oriented contexts. Agreeableness can contribute to empathy, cooperation, trust, and constructive interpersonal relationships, while conscientiousness can facilitate persistence, organization, responsibility, and goal-directed behavior. Openness may encourage exploration, creativity, intellectual flexibility, and willingness to consider unconventional pathways, whereas high neuroticism may increase vulnerability to anxiety, indecision, stress, and avoidance.

Empirical evidence has consistently demonstrated that personality traits are related to consequential educational and occupational outcomes. In their meta-analysis, Barrick and Mount found that conscientiousness was a broadly applicable predictor of job performance across occupational categories, while other personality dimensions showed more differentiated relationships depending on the requirements of particular jobs (Barrick & Mount, 1991). These findings suggest that personality assessment can contribute meaningfully to vocational guidance by identifying characteristics associated with reliability, persistence, interpersonal effectiveness, emotional adjustment, and task performance. More recent research has similarly indicated that combinations of Big Five traits shape individuals' perceptions of career sustainability and their capacity to envision stable and meaningful professional futures (Aşkun & Muslu, 2025). Such evidence supports a configuration-based understanding of career development: occupational adjustment is rarely determined by one isolated trait, but rather by the interaction of multiple characteristics that may function differently across educational, cultural, and professional contexts.

The California Psychological Inventory occupies an important position within this tradition because it was developed to assess personality characteristics and interpersonal functioning in comparatively well-adjusted, nonclinical populations. Unlike instruments designed primarily to diagnose psychopathology, the CPI focuses on everyday social behavior, self-management, interpersonal style, responsibility, socialization, achievement orientation, independence, flexibility, and other characteristics relevant to functioning in educational, occupational, and community settings. Gough's conceptualization of the CPI emphasized the assessment of folk concepts—socially meaningful personality characteristics that are observable and interpretable in ordinary life (Gough, 1987). This orientation makes the CPI particularly relevant to educational–vocational guidance, where the objective is not merely to identify symptoms or disorders but to obtain a differentiated picture of how individuals perceive themselves, relate to others, pursue goals, manage demands, and adapt to social expectations. A guidance instrument derived from the CPI may therefore provide information that is both psychologically grounded and directly interpretable for counseling practice.

Vocational theories also demonstrate that personality must be understood in relation to environmental characteristics. Holland proposed that individuals and work environments can be described according to corresponding vocational types and that satisfaction, persistence, and performance are more likely when there is congruence between personal orientation and environmental demands (Holland, 1997). This person–environment fit perspective implies that educational–vocational guidance should not simply identify occupations with favorable labor-market prospects but should examine whether the behavioral requirements, interpersonal climate, value structure, and activity patterns of a field correspond with the individual's personality. For instance, socially oriented individuals may prefer environments involving teaching, counseling, care, or communication, whereas investigative individuals may be attracted to analytical, scientific, or problem-solving activities. Enterprising, conventional, realistic, and artistic orientations similarly reflect different combinations of interests, competencies, self-perceptions, and personality tendencies. The accuracy of vocational guidance therefore depends on the quality of information available about the person as well as the environment.

Career construction theory expands this perspective by emphasizing that careers are not simply selected from an external list of occupations; they are actively constructed through interpretation, adaptation, and personal narrative. Savickas described career development as a process through which individuals impose meaning on experiences, identify recurring life themes, and use vocational behavior to implement a developing self-concept (Savickas, 2005). Career adaptability—including concern, control, curiosity, and confidence—enables individuals to prepare for future tasks, assume responsibility for choices, explore alternatives, and pursue selected goals. This framework is especially pertinent in uncertain educational and labor environments because it shifts attention from static occupational matching to the psychological capacities required for ongoing adaptation. Accordingly, a comprehensive educational–vocational guidance instrument

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should assess not only conventional personality traits but also motivation, self-concept, independence, coping, flexibility, opportunity awareness, and willingness to confront uncertainty.

Social cognitive career theory similarly identifies self-efficacy beliefs, outcome expectations, goals, and contextual supports or barriers as central mechanisms in educational and occupational development (Lent, 2005). Individuals are more likely to explore, select, and persist in academic or career activities when they believe they can perform the required behaviors and expect those behaviors to produce valued outcomes. Conversely, low self-efficacy, negative expectations, perceived barriers, or weak goal commitment may restrict exploration even when the individual possesses the necessary abilities. This theoretical position underscores the importance of assessing motivation and self-concept alongside personality. Guidance based exclusively on interests or aptitude may overlook whether individuals feel capable of pursuing a pathway, whether they value its outcomes, and whether they possess sufficient resilience to persist when difficulties arise.

Self-determination theory further clarifies the motivational conditions under which educational and occupational choices become personally meaningful and sustainable. Deci and Ryan distinguished autonomous motivation, in which behavior is experienced as self-endorsed and congruent with personal values, from controlled motivation, in which behavior is driven primarily by external pressure, reward, guilt, or obligation (Deci & Ryan, 2000). The satisfaction of the psychological needs for autonomy, competence, and relatedness supports internalization, engagement, persistence, and well-being. In educational–vocational guidance, this distinction is critical because students may select fields under family pressure, social prestige, or economic expectations without developing genuine commitment to those pathways. Assessing motivation, independence, self-confidence, achievement orientation, and perceived competence may therefore help counselors distinguish between internally supported choices and choices that are vulnerable to dissatisfaction, withdrawal, or later career instability.

Self-concept is another central construct in educational and vocational development. Marsh conceptualized self-concept as multidimensional rather than unitary, indicating that individuals may hold differentiated perceptions of themselves across academic, social, emotional, and physical domains (Marsh, 1990b). His research on the structure of academic self-concept further demonstrated that students' perceptions of competence are organized according to specific academic domains and are shaped through internal and external comparison processes (Marsh, 1990a). These self-perceptions influence effort, persistence, course selection, achievement behavior, and willingness to enter demanding fields. Consequently, educational and vocational guidance requires an assessment of how individuals evaluate their abilities, worth, competence, future prospects, and capacity for achievement. A student may possess objective ability but avoid a suitable pathway because of low self-confidence, whereas another may pursue an unrealistic option because of an inflated or insufficiently differentiated self-concept.

Values provide an additional framework through which individuals evaluate educational and career alternatives. Rokeach described values as enduring beliefs concerning desirable modes of conduct or end states of existence that guide judgments, preferences, and behavior (Rokeach, 1973). Career choices often embody value commitments concerning achievement, security, independence, service, creativity, status, social contribution, tradition, or personal freedom. Two individuals with similar abilities and personality profiles may therefore make different vocational choices because they prioritize different life goals. Moral development is also relevant because occupational roles involve judgments about responsibility, fairness, authority, social norms, and obligations toward others. Kohlberg's cognitive-developmental theory emphasized that moral reasoning develops through qualitatively different stages and influences the principles individuals use when resolving social and ethical dilemmas (Kohlberg, 1969). The inclusion of values and socio-moral orientations in a guidance instrument can thus provide important information about the kinds of environments and responsibilities that individuals are likely to experience as meaningful and legitimate.

Educational and occupational decision-making is also closely related to identity formation. Erikson regarded the establishment of a coherent identity as the central psychosocial task of adolescence, during which individuals attempt to integrate personal characteristics, social expectations, values, and anticipated adult roles (Erikson, 1968). Educational and vocational commitments are major components of this identity because they represent concrete answers to questions about future direction, social contribution, and personal continuity. Marcia operationalized Erikson's theory through the dimensions of exploration and commitment, distinguishing identity achievement, moratorium, foreclosure, and diffusion

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(Marcia, 1966). Students who have explored alternatives and formed commitments may approach career decisions with greater clarity, whereas those in diffusion may lack direction and those in foreclosure may commit prematurely to externally imposed choices. Accordingly, identity and independence are not peripheral characteristics but fundamental indicators of readiness for educational and vocational decision-making.

Recent studies reinforce the continuing relevance of identity in contemporary educational contexts. García-Martínez and colleagues reported that career construction processes and emotional intelligence contribute to vocational identity among university students, suggesting that identity is strengthened when individuals can understand emotional experiences, adapt to developmental demands, and construct meaningful career narratives (García-Martínez et al., 2023). Ding and colleagues further demonstrated that parental rearing styles are related to adolescent ego identity, with internal attitudes functioning as mediating mechanisms (Ding et al., 2024). These findings indicate that vocational identity develops within relational and cultural contexts rather than through individual reflection alone. Family expectations, parenting practices, educational competition, and social comparison may either support exploration or promote premature, conflicted, or externally controlled commitments.

Digital environments have introduced further challenges to identity and career development. Barouti and Tayyebzadeh argued that identity is being rearranged within the digital lifeworld, where online representation, continuous connectivity, and exposure to multiple social narratives alter how individuals understand themselves and others (Barouti & Tayyebzadeh, 2025). In these environments, adolescents may experiment with different identities, compare themselves with idealized representations, and encounter rapidly changing models of success. Fajarista and Taufik found a relationship between ego identity and hedonistic lifestyle among adolescents, suggesting that weaknesses or variations in identity formation may be reflected in consumption-oriented and pleasure-seeking behavioral patterns (Fajarista & Taufik, 2025). Mao and colleagues likewise showed that adolescent ego identity is associated with problematic short-video use in online learning environments, with psychological resilience and academic procrastination contributing to the explanatory process (Mao et al., 2025). These findings demonstrate that contemporary educational–vocational assessment should consider not only conventional personality and motivational traits but also maladaptive behaviors, resilience, self-regulation, and the capacity to maintain goal-directed behavior amid digital distraction.

Coping and defensive processes are equally important because educational and occupational choices often evoke stress, conflict, fear of failure, and interpersonal pressure. Lazarus and Folkman conceptualized coping as a dynamic response to the appraisal of environmental demands and personal resources, distinguishing strategies aimed at modifying the problem from those aimed at regulating emotional responses (Lazarus & Folkman, 1984). Students who use active, flexible, and problem-focused coping may be better equipped to gather information, seek support, reconsider alternatives, and persist through setbacks. By contrast, avoidance, passivity, projection, excessive approval-seeking, or social withdrawal may interfere with realistic decision-making. Anna Freud's analysis of ego defenses provides a complementary account of how individuals protect themselves from anxiety through mechanisms that may distort internal or external reality (Freud, 1937). Although defensive processes can temporarily reduce distress, rigid or maladaptive defenses may impair self-understanding and contribute to unrealistic educational or career commitments.

Social competence and psychological adjustment also influence the translation of personality characteristics into occupational performance. Hoffmann's research demonstrated meaningful relationships among social competence, psychopathology, and work performance in vocational rehabilitation, indicating that successful functioning depends on more than technical capability alone (Hoffmann, 1997). Interpersonal responsiveness, emotional regulation, reliability, and adaptive behavior can affect whether individuals function effectively within work groups, respond to supervision, manage conflict, and meet role expectations. Therefore, a guidance scale that includes psychopathology-related tendencies and maladaptive behaviors may provide preventive information, provided that such dimensions are interpreted cautiously and are not used as substitutes for clinical diagnosis. Their value lies in identifying adjustment patterns that may affect educational persistence, social functioning, and readiness for particular environments.

Despite the existence of established personality and career instruments, educational and vocational guidance frequently remains fragmented. Some measures assess interests, others assess broad personality traits, and still others focus on self-efficacy, values, identity, or adjustment.

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This separation may limit counselors' capacity to understand how these domains interact within a particular individual. Furthermore, instruments developed for general personality assessment cannot automatically be assumed to possess adequate relevance, clarity, validity, or interpretability when adapted for a specific educational and cultural purpose. A specialized instrument derived from the CPI therefore requires systematic item review, expert evaluation, psychometric validation, reliability assessment, and preliminary norming before it can be recommended for guidance practice. Such an instrument should preserve the CPI's emphasis on normal personality and social functioning while integrating dimensions directly relevant to educational and career decision-making, including extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, motivation and self-concept, maladaptive behavior, socio-moral values, coping and defensive styles, identity and independence, introversion, and courage and risk-taking.

The development of a multidimensional educational–vocational guidance questionnaire may offer several practical advantages. It can provide counselors with a structured psychological profile rather than isolated scores, support individualized interpretation of students' strengths and vulnerabilities, improve the quality of person–environment matching, and help identify cases requiring further counseling or assessment. It may also contribute to preventive guidance by detecting low motivation, weak self-concept, identity diffusion, emotional instability, maladaptive coping, interpersonal difficulties, or unrealistic risk tendencies before these factors produce academic disengagement or unsuitable occupational choices. At the institutional level, valid assessment data can support educational planning, career-development programs, targeted interventions, and more evidence-based counseling practices. However, these applications depend on the demonstration that the instrument's items adequately represent the intended constructs and produce internally consistent scores within the target population.

Accordingly, the aim of the present study was to develop, evaluate the content validity and internal consistency, and conduct a preliminary standardization of an educational–vocational guidance questionnaire derived from the California Psychological Inventory for assessing personality, motivational, identity-related, value-based, coping, social, and adjustment characteristics relevant to educational and career decision-making.

2. Methods and Materials

The present study was an applied descriptive-correlational research with a psychometric orientation aimed at examining the validity and norming of the Academic–Vocational Guidance Questionnaire based on the California Psychological Inventory (CPI). Given the objective of the study, the research design focused on item extraction, content refinement, construct examination, and psychometric evaluation of a researcher-adapted instrument derived from the CPI framework. In line with the methodological expectations of psychometric studies, the research process included expert review, item screening, assessment of validity and reliability, and statistical analysis of the questionnaire structure. Descriptive-correlational designs are appropriate when the purpose is to identify relationships among variables and to investigate the internal consistency and construct organization of measurement tools in natural settings rather than through experimental manipulation.

The statistical population consisted of two specialized groups, including university faculty members in the fields of psychology, counseling, and educational sciences, as well as experts, counselors, and psychologists from the Ministry of Education. The inclusion of these two groups was based on the dual necessity of obtaining both theoretical and applied judgments regarding the components of academic–vocational guidance. Faculty members contributed to the conceptual and theoretical identification of personality-related constructs associated with career and academic guidance, whereas practitioners and specialists in the Ministry of Education provided field-based professional judgments concerning the practical relevance of these constructs in school counseling and educational decision-making contexts. This logic is consistent with contemporary views in career development theory, which emphasize that academic and vocational guidance is shaped not only by stable personality factors but also by self-beliefs, social functioning, adaptation, and decision-making processes. The sample size was 700 participants, selected through random sampling from among the eligible members of the statistical population. The relatively large sample size was considered appropriate for psychometric evaluation, especially because factor-analytic procedures and item-retention decisions require adequate representation and stable covariance patterns among items. In psychometric research, larger samples increase the stability of estimated parameters and

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improve the credibility of the factor structure and internal consistency findings.

The primary instrument of the study was the 480-item California Psychological Inventory (CPI), a well-known personality assessment inventory designed for non-clinical populations and intended to evaluate interpersonal style, social maturity, self-management, and other functional dimensions of personality rather than psychopathology. Because academic and vocational guidance is closely associated with traits such as responsibility, social adaptability, self-confidence, achievement orientation, and decision-related behavioral tendencies, the CPI provided a suitable conceptual foundation for deriving a specialized guidance instrument. The broader use of personality traits in predicting educational and occupational outcomes has been well established in the literature, particularly regarding dimensions such as conscientiousness, extraversion, emotional stability, and openness to experience (Barrick & Mount, 1991; Costa & McCrae, 1992).

In the first phase of the study, the 480 items of the CPI were reviewed by experts to identify those statements conceptually related to academic–vocational guidance. After the initial screening, the relevant personality characteristics were classified into 12 factors associated with academic and career guidance. Subsequently, items judged to be relevant, necessary, and conceptually congruent with the purpose of the study were retained, whereas unrelated or redundant items were excluded. As a result of this process, 201 items remained from the original 480 statements and constituted the preliminary version of the Academic–Vocational Guidance Questionnaire.

The item selection and reduction process was grounded in theoretical considerations from personality and career development literature. Research has consistently shown that personality dimensions are linked to occupational preferences, work performance, educational adjustment, social functioning, and identity development (Barrick & Mount, 1991; Holland, 1997; Erikson, 1968; Marcia, 1966). In addition, self-perceptions and self-concept structures influence educational choices and academic persistence (Marsh, 1990), while self-regulatory motivation and autonomous goal pursuit contribute to purposeful educational and vocational engagement (Deci & Ryan, 2000). Therefore, the retained items were selected insofar as they reflected such constructs in a way relevant to academic–vocational guidance.

The development of the questionnaire was carried out in several sequential stages:

1. Initial Review of CPI Items

All 480 CPI items were examined carefully to determine their conceptual relevance to academic–vocational guidance. Items reflecting dimensions such as social competence, responsibility, self-regulation, interpersonal orientation, self-confidence, emotional adjustment, and motivational tendencies were identified for potential inclusion. This approach was consistent with evidence indicating that personality traits are meaningfully associated with work-related functioning and adjustment (Barrick & Mount, 1991; Hoffmann et al., 1997).

2. Extraction and Categorization of Relevant Characteristics

Following the item review, the personality-related indicators relevant to academic and vocational guidance were organized into 12 conceptual factors. This categorization was informed by the literature on vocational personality, educational decision-making, identity formation, and psychosocial adaptation (Holland, 1997; Lent, 2005; Erikson, 1968; Marcia, 1966). At this stage, the goal was to create a coherent conceptual framework that would transform a broad personality inventory into a specialized guidance-related measure.

3. Expert Review and Item Refinement

The preliminary pool of selected items was submitted to a panel of experts consisting of faculty members in psychology and counseling as well as professional counselors and educational psychologists. The experts reviewed each item in terms of relevance, necessity, clarity, and appropriateness for measuring dimensions of academic–vocational guidance. Items that were repetitive, vague, semantically weak, or insufficiently connected to the intended construct were removed. This procedure provided evidence for the content representativeness of the final item pool.

4. Formation of the Preliminary Questionnaire

After incorporating expert feedback and eliminating unsuitable items, the final preliminary form of the questionnaire consisted of 201 items. This version was then administered for psychometric analysis and norming.

The validity of the questionnaire was examined through several complementary approaches:

Content validity was evaluated through expert judgment. Specialists assessed whether each item adequately represented the intended academic–vocational guidance construct and whether the set of items covered the conceptual breadth of the domain. In measurement development, content validity is particularly important when

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a new instrument is extracted or adapted from a broader inventory, as in the present study. The role of expert consensus in establishing theoretical alignment is central to instrument construction.

Face validity was considered by examining the wording, clarity, readability, and apparent relevance of items. This step was necessary to ensure that items could be understood appropriately by respondents and that they appeared logically related to educational and vocational guidance. Clear and interpretable item wording contributes to more accurate response patterns and reduces ambiguity in psychometric assessment.

Construct validity was investigated through the internal structure of the questionnaire and the interrelationships among items and factors. Since the instrument was expected to reflect multiple dimensions of personality relevant to academic–vocational guidance, the analysis of its latent organization was essential. The theoretical basis for this expectation was supported by previous literature indicating that personality, self-belief, adaptation, identity, and emotional competence jointly shape educational and vocational behavior (Lent, 2005; García-Martínez et al., 2023). Construct validity was therefore examined by evaluating whether the empirical structure of the questionnaire corresponded to the theoretically expected dimensions.

The reliability of the questionnaire was assessed primarily through internal consistency. For this purpose, Cronbach's alpha coefficient was calculated for the overall scale and, where applicable, for the subscales. Internal consistency is one of the most widely used indicators of reliability in multidimensional questionnaires and reflects the degree to which items within a scale measure a common construct. The use of this index is standard in psychometric studies involving personality and self-report measures (Costa & McCrae, 1992).

Where possible, reliability evaluation may also include test–retest stability; however, the principal emphasis in this study was on the coherence of items within the newly developed instrument. Since the questionnaire was derived from a broader personality framework and then psychometrically refined for a specific educational purpose, internal consistency was considered a critical indicator of measurement quality.

After the preliminary version of the questionnaire was finalized, it was distributed among the selected participants. Prior to administration, the purpose of the study was explained to respondents, and informed consent was obtained. Participants were assured that their responses would remain confidential and would be used solely for scientific purposes. The questionnaire was then completed by the participants under standard conditions.

Following data collection, the completed questionnaires were reviewed for completeness and consistency. Incomplete forms and response sheets with substantial missing data or clear response irregularities were excluded from analysis. The final dataset was then prepared for descriptive and inferential statistical procedures.

Data analysis was conducted using both descriptive and inferential statistics. Descriptive indicators such as mean, standard deviation, minimum and maximum scores, and distributional characteristics were used to summarize participants' responses and examine the general pattern of scores. These analyses provided an initial picture of item functioning and score dispersion.

To investigate the psychometric structure of the instrument, factor-analytic procedures were employed. Because the questionnaire was designed around multiple theoretically meaningful dimensions, the analysis of underlying factors was essential for evaluating construct validity. Item-level statistics, inter-item relationships, and factor loadings were examined to determine the adequacy of the retained items and to identify items requiring removal or revision. In addition, the internal consistency of the scale was assessed using Cronbach's alpha. Statistical significance in all inferential analyses was considered at the level of $p<0.05$.

3. Findings and Results

In this study, the 201 items of the Educational-Vocational Guidance Questionnaire, based on the Five-Factor Model of personality (Costa & McCrae, 1992) combined with cognitive, emotional, motivational, moral, and psychopathological dimensions (Seligman, 2011; Peterson & Seligman, 2004), were categorized into 12 main factors. To assess the content validity of the questionnaire, the opinions of 120 experts in educational psychology and vocational counseling were utilized, and two indices—the Content Validity Ratio (CVR) and the Content Validity Index (CVI)—were calculated. According to Lawshe (1975) and Nunnally and Bernstein (1994), values above 0.70 are considered appropriate for initial stages, above 0.80 for applied research, and above 0.90 for critical decision-making and clinical diagnosis. In this regard, detailed content validity results were extracted for each subscale,

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demonstrating a favorable alignment between the items and the theoretical constructs.

As the first step in the specific analyses, the Extraversion scale, comprising eight components (sociability, leadership, humor, exhibitionism, intimacy/warmth, forthrightness, verbal ability, and talkativeness), was evaluated and formulated into 14 items (items 1–14 of the H questionnaire). The results indicated that the CVR and CVI coefficients for all items in this scale fell within the range of 0.80 to 0.98. The highest CVR values were related to items concerning "sociability" and "humor," while the lowest value corresponded to the item "I like to give speeches in front of a group"; however, this remained within the acceptable limit (above 0.80), thus confirming the content validity of this scale at an excellent level.

Continuing these specific evaluations, the Agreeableness scale, including 11 components (compliance, social responsibility, honesty, integrity, emotional stability, empathy, sensitivity to others' feelings/opinions, fairness, kindness, selflessness, and trust), was analyzed and structured into 21 items (items 15–35 of the H questionnaire). The CVR and CVI values for these dimensions were all above 0.80, with some approaching 0.98, demonstrating a very favorable overlap between the item content and the Agreeableness construct.

Consistent with these findings, the Conscientiousness scale—comprising components of planning and self-discipline, work commitment, attention, focus, diligence, perseverance, determination, and stability in decision-making—was presented in 19 items (items 36–54 of the H questionnaire). In this section, all items possessed CVR and CVI values above 0.80, and this scale also received scientific confirmation at an excellent level.

This favorable trend was also observed in the Neuroticism scale. This scale includes 12 components (hopelessness, pessimism, social anxiety, individual anxiety, irrational fears, intrusive thoughts, negative emotions, loneliness, jealousy, emotional sensitivity, psychosomatic disorders, and stress/tension) and was formulated into 20 items (items 55–75 of the H questionnaire). Calculations showed that CVR and CVI values for most items fell within the 0.80 to 0.98 range, indicating an appropriate fit between the items and the Neuroticism construct.

Furthermore, in the examination of the Openness to Experience scale, which includes 13 components (abstract thinking, reflective thinking, divergent thinking, convergent thinking, creative thinking, creativity, critical thinking, interest in science, interest in education, appreciation of art/music, aesthetics, intuition, and sensation seeking) and was presented in 19 items (items 76–94 of the H questionnaire), brilliant results were achieved. Accordingly, all items had CVR and CVI values above 0.80, and the content validity of this scale was confirmed at a highly favorable level.

Beyond the traditional five dimensions, the Motivation and Self-Concept scale—including 12 components (self-confidence, self-esteem, achievement motivation, academic motivation, hopefulness, positive emotional state, optimism, resilience, self-awareness, satisfaction with family/environment, life satisfaction, and sense of well-being)—was measured through 24 items (items 95–118 of the H questionnaire). The results showed that all items possessed acceptable and mostly high CVR and CVI values, and this scale effectively covers motivational and self-regulation dimensions.

In the assessment of pathologies, the Psychopathology and Maladaptive Behaviors scale, consisting of 11 components (aggression and anger, hyperactivity, social indifference, selfishness, psychosomatic symptoms, antisocial behavior, disobedience, desire for revenge, feeling of emptiness, dominance, and hedonism), was examined in 24 items (items 119–142 of the H questionnaire). The CVR and CVI values for this factor were also within an acceptable range, and its content validity was well confirmed.

In addition to pathological constructs, the Values and Socio-Moral Orientations scale, including eight components (rule-following, moral sensitivity, social sensitivity, moral judgment, receptivity to criticism, adherence to social norms, traditionalism, and animal rights), was evaluated in 14 items (items 143–156 of the H questionnaire). The results demonstrated that all items possessed favorable content validity indices, and this scale was confirmed at an excellent level.

On the other hand, the Coping and Defense Styles scale, including nine components (social pressure, superiority, projection, approval-seeking, self-defense, flexibility, social withdrawal, submissiveness, and feelings of victimization), was analyzed in 13 items (items 157–169 of the H questionnaire). CVR and CVI indices for all items were above the criterion, and the highly favorable content validity of this scale was confirmed.

Subsequently, the Identity and Independence scale, comprising 11 components (independence, dependence, seriousness, assertiveness, perfectionism, family conflict, sense of well-being, attentiveness to opportunities, high expectations and ambition, having family role models, and

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tendency toward freedom of speech), was investigated in 18 items (items 170–187 of the H questionnaire). The CVR and CVI values were at an acceptable and high level, and this scale successfully achieved the highest mean CVR among all subscales.

Conversely, the Introversion scale, including four components (self-control, talkativeness, conservatism, and skepticism) presented in 9 items (items 188–196 of the H questionnaire), recorded a different trend. Although some items had lower CVRs compared to other scales, all items were evaluated as appropriate in terms of CVI and acceptable in content validity; however, this scale ultimately obtained the lowest mean CVR and CVI among the subscales.

Finally, the Courage and Risk-Taking scale, consisting of three components (courage and boldness, risk-taking, and decisiveness) formulated into 5 items (items 197–201 of the H questionnaire), was analyzed. The CVR and CVI values for all items were above the criterion, and this scale achieved the highest mean CVI among all subscales.

To summarize the content validity results at the total questionnaire level and perform a comparative analysis of the different dimensions, the mean CVR and CVI coefficients for each of the 12 subscales were calculated, with the details of the Content Validity Ratio reflected in Table 1.

Table 1

Mean CVR Coefficients of the Educational-Vocational Guidance Questionnaire Subscales

Row	Subscale Name	No. of Items	Mean CVR
1	Identity and Independence	18	0.9217
2	Courage and Risk-Taking	5	0.9150
3	Openness to Experience	19	0.9080
4	Values and Socio-Moral Orientations	14	0.8950
5	Motivation and Self-Concept	24	0.8920
6	Coping and Defense Styles	13	0.8880
7	Agreeableness	21	0.8850
8	Extraversion	14	0.8810
9	Psychopathology and Maladaptive Behaviors	24	0.8790
10	Conscientiousness	19	0.8750
11	Neuroticism	20	0.8680
12	Introversion	9	0.8022
—	Total Questionnaire Mean	201	0.8918

According to the results in Table 1, the total mean CVR coefficient of the questionnaire was 0.8918, which is higher than the 0.80 criterion for applied research, indicating the favorable content validity of the instrument. Among the subscales, the highest mean CVR was related to Identity and Independence (0.9217) and the lowest mean was related to Introversion (0.8022). Despite this difference, all scales fell within the acceptable range (above 0.80), confirming the appropriateness of the item content with the intended theoretical constructs. Following these findings, the Content Validity Index (CVI) was also calculated for all factors, and the results are organized in Table 2.

Table 2

Mean CVI Coefficients of the Educational-Vocational Guidance Questionnaire Subscales

Row	Subscale Name	No. of Items	Mean CVI
1	Courage and Risk-Taking	5	0.9380
2	Motivation and Self-Concept	24	0.9250
3	Values and Socio-Moral Orientations	14	0.9180
4	Coping and Defense Styles	13	0.9120
5	Openness to Experience	19	0.9110
6	Identity and Independence	18	0.9100
7	Agreeableness	21	0.9080
8	Extraversion	14	0.9050

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9	Conscientiousness	19	0.9040
10	Psychopathology and Maladaptive Behaviors	24	0.9030
11	Neuroticism	20	0.9020
12	Introversion	9	0.9011
—	Total Questionnaire Mean	201	0.9033

According to the results in Table 2, the total mean CVI coefficient of the questionnaire was 0.9033, which exceeds the 0.90 criterion for critical decision-making, indicating a very favorable content validity of the instrument. Among these, the highest mean CVI belonged to Courage and Risk-Taking (0.9380) and the lowest mean to Introversion (0.9011). It is noteworthy that even the lowest mean CVI exceeded the 0.90 threshold, and all subscales were at a very favorable level. Comparing the results of Tables 1 and 2 shows that the CVI index generally has higher values than the CVR; this is due to the nature of these two indices: CVI is more conservative than CVR and covers a wider range of content validity.

After establishing the validity and content validity of the instrument at both micro and macro levels, assessing the reliability and internal consistency of the questionnaire was the next step in the analysis. For this purpose, Cronbach's alpha coefficient was calculated for the total questionnaire and each subscale, with the criterion for reliability acceptance being an alpha coefficient above 0.70. The output of these calculations, along with descriptive statistics, is presented in Table 3.

Table 3

Descriptive Statistics and Reliability of the Educational-Vocational Guidance Questionnaire Subscales

Row	Subscale Name	No. of Items	Mean	Std. Dev.	Cronbach's Alpha
1	Extraversion	14	3.45	0.82	0.882
2	Agreeableness	21	3.62	0.75	0.865
3	Conscientiousness	19	3.58	0.79	0.871
4	Neuroticism	20	3.20	0.85	0.854
5	Openness to Experience	19	3.75	0.72	0.897
6	Motivation and Self-Concept	24	3.68	0.76	0.885
7	Psychopathology and Maladaptive Behaviors	24	2.85	0.92	0.842
8	Values and Socio-Moral Orientations	14	3.82	0.70	0.878
9	Coping and Defense Styles	13	3.40	0.81	0.860
10	Identity and Independence	18	3.55	0.78	0.837
11	Introversion	9	3.30	0.84	0.858
12	Courage and Risk-Taking	5	3.48	0.80	0.866
—	Total Questionnaire	201	3.49	0.78	0.9033

According to the results in Table 3, the Cronbach's alpha coefficient for the subscales fell within the range of 0.837 to 0.897, all of which are above the 0.70 criterion, indicating desirable internal consistency of items within each scale. The lowest alpha coefficient was related to Identity and Independence (0.837) and the highest to Openness to Experience (0.897). The total Cronbach's alpha coefficient was 0.9033, indicating very favorable reliability of the instrument at the total level. This value exceeds the 0.90 criterion for critical decision-making instruments, showing that the questionnaire possesses high internal consistency and appropriate reliability.

Furthermore, an examination of the descriptive statistics in the table above showed that the mean scores for all components—except for the "Psychopathology and Maladaptive Behaviors" scale with a mean of 2.85—were above the theoretical mean (3). This result indicates that respondents scored higher on positive personality components (such as Openness to Experience with a mean of 3.75 and Socio-Moral Orientations with a mean of 3.82). The lower mean of the Psychopathology scale is completely consistent with theoretical expectations, as this scale measures a negative construct, and lower scores indicate better mental health among the respondent population and the instrument's precise performance in distinguishing between normal and abnormal dimensions.

Finally, based on the aforementioned statistical analyses, the summary of the research findings showed that the 201 items of the Educational-Vocational Guidance Questionnaire were categorized into 12 main factors. From the perspective of content validity, the total mean CVR was 0.8918 (above 0.80) and the total mean CVI was 0.9033

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(above 0.90), which indicates favorable to very favorable content validity of the instrument. In terms of reliability, the total Cronbach's alpha coefficient was 0.9033, indicating very high internal consistency and favorable stability of the instrument. Accordingly, the Educational-Vocational Guidance Questionnaire based on the CPI is a valid, reliable, and efficient instrument for assessing personality traits in the context of educational and vocational guidance and can be used as an effective tool in this field.

4. Discussion and Conclusion

The present study was conducted to develop and psychometrically evaluate an educational–vocational guidance questionnaire derived from the California Psychological Inventory and organized around 12 personality, motivational, identity-related, value-based, coping, and adjustment dimensions. The results showed that the final questionnaire consisted of 201 items distributed across Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to Experience, Motivation and Self-Concept, Psychopathology and Maladaptive Behaviors, Values and Socio-Moral Orientations, Coping and Defense Styles, Identity and Independence, Introversion, and Courage and Risk-Taking. The total mean Content Validity Ratio was 0.8918, the total mean Content Validity Index was 0.9033, and the overall Cronbach's alpha coefficient was 0.9033. In addition, the reliability coefficients of the individual subscales ranged from 0.837 to 0.897. Taken together, these findings indicate that the questionnaire possesses satisfactory content representation and high internal consistency and can provide a coherent multidimensional assessment of psychological characteristics relevant to educational and vocational guidance.

The favorable total CVR and CVI values indicate that the experts generally agreed that the retained items were necessary, relevant, clear, and representative of the intended educational–vocational guidance constructs. This finding is theoretically important because educational and career decisions are not determined by a single psychological characteristic. Rather, they emerge from interactions among personality, self-beliefs, motives, social competencies, values, identity commitments, coping resources, and perceptions of future opportunities. Social cognitive career theory similarly proposes that career interests, choices, and persistence are shaped by self-efficacy beliefs, outcome expectations, personal goals, and contextual conditions (Lent, 2005). Career construction theory also views vocational behavior as an adaptive and meaning-making process through which individuals integrate personal characteristics and life experiences into a coherent career narrative (Savickas, 2005). Therefore, the strong content validity observed in the present study may reflect the questionnaire's broad conceptual coverage and its correspondence with multidimensional accounts of educational and career development.

The overall Cronbach's alpha coefficient of 0.9033 demonstrated strong internal consistency at the total-scale level. The relatively narrow range of alpha coefficients across the 12 subscales also suggests that the dimensions were measured with acceptable coherence despite their conceptual diversity. This result is consistent with the theoretical premise of the CPI, which was designed to assess socially meaningful personality characteristics and adaptive patterns in nonclinical populations (Gough, 1987). The CPI framework emphasizes characteristics that are observable in interpersonal, educational, and occupational settings, making it an appropriate foundation for constructing a guidance-oriented measure. The present findings suggest that the selected items retained sufficient internal coherence after being extracted from the broader inventory and reorganized according to educational and vocational relevance. At the same time, the high total reliability should not be interpreted as evidence that the 12 dimensions are interchangeable; rather, it indicates that they collectively contribute to a broader construct involving readiness and adjustment in educational and vocational decision-making.

Among the subscales, Openness to Experience had the highest Cronbach's alpha coefficient, with a value of 0.897. This finding suggests that the items assessing intellectual curiosity, creativity, reflective thinking, interest in education and science, appreciation of art, critical thinking, and receptivity to new experiences formed a particularly coherent dimension. Openness is theoretically relevant to educational and vocational exploration because individuals who are curious, cognitively flexible, and receptive to novelty may be more willing to examine alternative fields, reconsider established assumptions, and adapt to changing educational and occupational conditions. In the five-factor model, openness represents imagination, intellectual engagement, aesthetic sensitivity, and a preference for variety and complexity (Costa & McCrae, 1992). The lexical Big Five framework similarly recognizes openness as a broad and relatively stable dimension of personality (Goldberg, 1990). Thus, the high reliability of this subscale

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supports the view that openness can be assessed consistently as an important component of educational–vocational exploration and adaptability.

The findings also showed favorable content validity and reliability for Conscientiousness. This dimension included planning, self-discipline, commitment to work, concentration, perseverance, diligence, decisiveness, and stability in decision-making. Conscientiousness has repeatedly been identified as one of the strongest personality predictors of academic achievement, occupational performance, and responsible goal pursuit. Barrick and Mount demonstrated that conscientiousness predicts job performance across a wide range of occupational categories because it reflects dependability, organization, persistence, and achievement orientation (Barrick & Mount, 1991). Costa and McCrae likewise treated conscientiousness as a central personality domain associated with competence, order, dutifulness, self-discipline, and deliberation (Costa & McCrae, 1992). The satisfactory psychometric performance of the conscientiousness subscale is therefore consistent with extensive evidence that educational and career success depends not only on aptitude but also on the capacity to organize behavior, sustain effort, and remain committed to long-term goals.

Extraversion and Agreeableness also demonstrated acceptable validity and reliability. Extraversion included sociability, leadership, humor, interpersonal warmth, assertiveness, verbal ability, and talkativeness, while Agreeableness encompassed cooperation, honesty, empathy, fairness, kindness, trust, and social responsibility. These dimensions are particularly relevant to educational and occupational environments involving teamwork, leadership, communication, teaching, counseling, service provision, and social influence. Jung's typological distinction between extraversion and introversion emphasized that individuals differ in whether their attention and psychological orientation are directed predominantly toward the external social world or internal reflection (Jung, 1921). Eysenck later conceptualized extraversion as a biologically grounded dimension associated with sociability, activity, and stimulation seeking (Eysenck, 1967). The present results suggest that such tendencies can be captured reliably within a guidance instrument and interpreted in relation to the social and interpersonal demands of educational and career environments.

The findings regarding Agreeableness are also consistent with the Big Five literature, which describes this trait in terms of empathy, cooperation, trust, modesty, and concern for others (Goldberg, 1990). In occupational contexts, agreeableness may be particularly advantageous where success depends on relationship quality, conflict management, emotional support, and responsiveness to others. Recent evidence has further indicated that combinations of personality characteristics, including agreeableness, contribute to perceptions of career sustainability and long-term occupational adjustment (Aşkun & Muslu, 2025). Accordingly, the favorable validity of the Agreeableness scale suggests that the questionnaire can help counselors identify interpersonal strengths that may support adjustment in socially intensive educational and professional pathways.

Neuroticism was also measured with satisfactory reliability and content validity. The dimension incorporated pessimism, hopelessness, anxiety, irrational fears, intrusive thoughts, negative emotions, loneliness, jealousy, emotional sensitivity, psychosomatic complaints, and stress. Neuroticism is generally associated with emotional instability and heightened sensitivity to threat, frustration, and psychological pressure. Within educational and career contexts, elevated neurotic tendencies may increase indecision, avoidance, fear of failure, and difficulty coping with competitive or ambiguous circumstances. Costa and McCrae described neuroticism as a broad predisposition toward negative affect and vulnerability to stress (Costa & McCrae, 1992). Eysenck similarly regarded emotional instability as a central personality dimension with a biological basis (Eysenck, 1967). The acceptable psychometric performance of the Neuroticism subscale therefore supports its inclusion in a multidimensional guidance measure, particularly because emotional regulation can influence the extent to which individuals explore alternatives, tolerate uncertainty, and persist through educational or occupational setbacks.

The Motivation and Self-Concept subscale showed high content validity and reliability and included self-confidence, self-esteem, achievement motivation, academic motivation, optimism, hope, resilience, self-awareness, life satisfaction, and a sense of well-being. This result is consistent with social cognitive and self-determination perspectives, both of which emphasize that individuals' behavior is shaped by their perceptions of competence, anticipated outcomes, and quality of motivation. Lent argued that self-efficacy beliefs play a central role in the development of career interests, choice goals, and persistence (Lent, 2005). Deci and Ryan likewise proposed that autonomous motivation and the satisfaction of autonomy, competence, and relatedness

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promote sustained engagement and psychological well-being (Deci & Ryan, 2000). The favorable performance of this subscale therefore suggests that the questionnaire captures not only what individuals are like but also how they evaluate themselves and why they pursue particular goals.

The findings concerning self-concept are also compatible with Marsh's multidimensional model. Self-concept is not a single global judgment but a differentiated system of perceptions concerning academic, social, emotional, and other domains (Marsh, 1990b). Academic self-concept, in particular, can influence effort, persistence, educational aspirations, and selection of academic pathways (Marsh, 1990a). In the present questionnaire, the integration of self-confidence, self-esteem, motivation, hope, resilience, and life satisfaction within a broader motivational and self-concept dimension may help counselors evaluate whether students possess sufficient personal resources to pursue demanding educational or career objectives. This is especially important because objectively suitable opportunities may remain unexplored when individuals underestimate their competence or expect failure.

Identity and Independence produced the highest mean CVR among the subscales, indicating particularly strong expert agreement regarding the necessity of its items. This dimension included independence, assertiveness, ambition, perfectionism, opportunity awareness, family conflict, role models, high expectations, and freedom of expression. The prominence of this dimension is consistent with developmental theories that place identity formation at the center of adolescent and emerging-adult development. Erikson argued that establishing a coherent identity is the principal psychosocial task of adolescence and that failure to integrate personal values, roles, and future commitments may result in role confusion (Erikson, 1968). Marcia extended this theory by distinguishing identity statuses based on the presence or absence of exploration and commitment (Marcia, 1966). Since educational and vocational decisions constitute major forms of identity commitment, the high CVR of this subscale suggests that experts viewed identity and independence as essential components of valid guidance assessment.

Recent studies also support the inclusion of identity-related constructs. García-Martínez and colleagues found that career construction and emotional intelligence predict vocational identity in university students (García-Martínez et al., 2023). Ding and colleagues showed that parental rearing styles affect adolescent ego identity and that internalized attitudes help explain this relationship (Ding et al., 2024). These findings indicate that vocational identity is shaped through both personal and relational processes. The Identity and Independence subscale may therefore be useful for identifying whether individuals have developed autonomous educational and career aspirations or remain excessively dependent on external expectations, family pressures, or socially prescribed pathways.

The relevance of identity is further reinforced by contemporary studies of digital behavior. Mao and colleagues reported that ego identity is associated with problematic short-video use among adolescents and that resilience and academic procrastination contribute to this relationship (Mao et al., 2025). Fajarista and Taufik similarly identified a relationship between ego identity and hedonistic lifestyle patterns in adolescents (Fajarista & Taufik, 2025). Barouti and Tayyebzadeh argued that digital environments are transforming the organization and expression of identity by exposing individuals to multiple and sometimes contradictory models of selfhood (Barouti & Tayyebzadeh, 2025). These findings support the present study's inclusion of identity, maladaptive behavior, motivation, and self-regulation within a single guidance framework, because contemporary educational and vocational choices increasingly occur in digitally mediated environments characterized by distraction, comparison, unstable aspirations, and shifting standards of success.

The Courage and Risk-Taking subscale obtained the highest mean CVI. Although it contained only five items, experts judged its items to be highly relevant and clear. Educational and occupational decisions inevitably involve uncertainty because future employment conditions, individual performance, and environmental opportunities cannot be predicted with complete accuracy. Knight's analysis of risk and uncertainty provides a useful conceptual basis for understanding why career choice requires both judgment and willingness to act under incomplete information (Knight, 1921). Courage and calculated risk-taking may support exploration and innovation, whereas excessive risk aversion may restrict potentially suitable choices. Conversely, impulsive or poorly regulated risk-taking may result in unrealistic decisions. The high CVI of this scale suggests that decisiveness and willingness to confront uncertainty are viewed as meaningful components of educational–vocational readiness.

Values and Socio-Moral Orientations also demonstrated strong content validity and reliability. This subscale assessed rule-following, moral sensitivity, social awareness, moral judgment, acceptance of criticism, adherence to social

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norms, traditionalism, and concern for living beings. Values influence which educational and occupational outcomes individuals perceive as desirable and which forms of work they consider personally meaningful. Rokeach conceptualized values as enduring beliefs that guide choices and evaluations across situations (Rokeach, 1973). Kohlberg's theory further showed that moral judgment develops through increasingly complex forms of reasoning concerning rules, justice, social expectations, and ethical principles (Kohlberg, 1969). The satisfactory psychometric functioning of this subscale therefore supports the view that vocational guidance should not be reduced to ability and interest matching. It should also examine whether a field is consistent with the individual's moral commitments, social priorities, and preferred way of contributing to society.

The Coping and Defense Styles subscale also showed acceptable reliability and content validity. It included social pressure, projection, approval-seeking, flexibility, withdrawal, submission, defensiveness, superiority, and feelings of victimization. Lazarus and Folkman emphasized that coping depends on how individuals appraise environmental demands and evaluate their resources for managing them (Lazarus & Folkman, 1984). Active and flexible coping can facilitate information gathering, problem-solving, help-seeking, and revision of unrealistic goals. In contrast, avoidance, excessive submission, or dependence on social approval may interfere with autonomous decision-making. Freud's framework of ego defenses also explains how individuals may regulate anxiety through mechanisms that distort internal conflicts or external reality (Freud, 1937). The present findings suggest that coping and defensive tendencies can be measured coherently and may provide counselors with information about how individuals respond to educational pressure, failure, uncertainty, and interpersonal expectations.

The Psychopathology and Maladaptive Behaviors subscale had a lower mean score than the positive personality dimensions, which is theoretically appropriate in a predominantly nonclinical sample. This subscale included aggression, anger, hyperactivity, selfishness, antisocial behavior, revenge, emptiness, dominance, hedonism, and psychosomatic symptoms. Its acceptable reliability suggests that these indicators formed a coherent maladaptive dimension. The lower mean indicates that respondents reported fewer maladaptive characteristics than adaptive traits such as openness, motivation, and socio-moral orientation. This pattern supports the scale's capacity to differentiate functional from dysfunctional tendencies. Hoffmann's findings concerning the relationships among psychopathology, social competence, and vocational performance demonstrate that maladaptive psychological patterns can interfere with occupational functioning and rehabilitation outcomes (Hoffmann, 1997). Thus, inclusion of this subscale may help identify individuals who require more detailed psychological assessment before educational or career recommendations are made.

Finally, the Introversion subscale obtained the lowest mean CVR and CVI, although both indices remained acceptable. This comparatively weaker result may be related to the conceptual complexity of introversion and the heterogeneity of its indicators. Introversion should not be interpreted simply as the absence of extraversion, nor should it automatically be treated as maladaptive. Jung regarded introversion as a distinct orientation characterized by attention to internal experience and reflective processing (Jung, 1921). In many educational and professional contexts, introversion may support concentration, independent work, caution, and depth of thought. However, some items within the present scale also concerned skepticism, conservatism, talkativeness, and self-control, which may not represent a fully homogeneous construct. Although the reliability coefficient remained satisfactory, the lower validity indices indicate that this dimension may benefit from further conceptual refinement and item-level investigation.

Overall, the findings support the psychometric usefulness of the CPI-based educational–vocational guidance questionnaire as a broad assessment instrument. Its 12-dimensional structure reflects the theoretical position that appropriate educational and career decisions depend on the integration of personality traits, self-concept, motivation, identity, values, coping, social functioning, emotional adjustment, and tolerance for uncertainty. The high total content validity and internal consistency suggest that the instrument can generate sufficiently coherent information for preliminary guidance and research purposes. Nevertheless, the findings primarily establish content validity and internal consistency, and additional evidence is required before the instrument can be considered fully standardized or used independently for high-stakes educational and occupational decisions.

The present study had several limitations. First, the main evidence for validity was based on expert judgment and content-validity indices, while comprehensive evidence for construct, criterion, convergent, discriminant, and predictive validity was not reported. Second, internal consistency was assessed through Cronbach's alpha, but temporal stability

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was not examined through test–retest reliability. Third, the 201-item format may create respondent fatigue, reduce concentration, and increase the likelihood of patterned or incomplete responses. Fourth, the composition of the sample may limit the generalizability of the results to students from different age groups, educational levels, geographical regions, socioeconomic conditions, and cultural backgrounds. Fifth, some subscales included conceptually diverse indicators, particularly Introversion, Identity and Independence, and Coping and Defense Styles, which may require further examination of their internal structures. Finally, although the study was described as involving preliminary norming, detailed normative scores, percentile ranks, cutoff points, and subgroup comparisons were not sufficiently established.

Future research should examine the factorial structure of the questionnaire using exploratory and confirmatory factor analysis in independent samples. Item-response theory and Rasch modeling could also be applied to evaluate item difficulty, discrimination, threshold functioning, and potential redundancy. Test–retest studies should be conducted to establish temporal stability, while convergent and discriminant validity should be examined through comparisons with established measures of personality, vocational interests, career adaptability, self-efficacy, identity, motivation, and psychological adjustment. Predictive validity should be investigated by examining whether questionnaire scores predict academic persistence, field-of-study satisfaction, educational achievement, career indecision, job performance, and occupational satisfaction. Future studies should also develop a shorter form that preserves the conceptual breadth of the instrument while reducing administration time. Measurement invariance across gender, age, educational level, region, and socioeconomic status should be evaluated, and comprehensive norms should be established for relevant student and adult populations.

In practice, the questionnaire may be used as part of a comprehensive educational and vocational assessment rather than as a stand-alone decision-making instrument. Counselors should interpret the profile of subscale scores in combination with interviews, academic records, aptitude measures, vocational-interest inventories, and contextual information about family expectations and available opportunities. The instrument can help identify strengths such as conscientiousness, openness, social competence, resilience, independence, and moral commitment, as well as vulnerabilities involving emotional instability, maladaptive coping, low self-concept, or problematic behavior. Educational institutions may use the results to design individualized guidance plans, career-development workshops, motivation-enhancement programs, identity-exploration activities, and referrals for specialized counseling. Clear administration and interpretation guidelines should be developed, practitioners should receive appropriate training, and decisions should avoid rigid labeling or deterministic matching of individuals to occupations.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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All procedures performed in studies involving human participants were under the ethical standards of the institutional and, or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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