



Development And Validation Of My Choice My Future (Mcmf) Career Indicator: A Comprehensive Indigenous Personality Assessment

Dr Priyadharshini Sk^{1*}, Dr Aruna Balammal², Dr. Girish G P³, Dr. Ganesh L S⁴

^{1*}Bodhbridge Educational Services Pvt Ltd, Chennai, India, Email: sk.dharshi@gmail.com, ORCID: <https://orcid.org/0000-0003-0462-4454>

²ICFAI Business School, The ICFAI Foundation for Higher Education (a Deemed to-be-University under Sec 3 of UGC Act 1956), India, Email: aruna.b@ibsindia.org, ORCID: <https://orcid.org/0000-0002-4153-4506>

³ICFAI Business School, The ICFAI Foundation for Higher Education (a Deemed to-be-University under Sec 3 of UGC Act 1956), India, Email: gpgirish.ibs@gmail.com, ORCID: <https://orcid.org/0000-0003-0461-7350>

⁴The ICFAI Foundation for Higher Education (a Deemed to-be-University under Sec 3 of UGC Act 1956), India, Email: lsganesh@gmail.com, ORCID: <https://orcid.org/0000-0001-5388-3212>

Citation: Dr Priyadharshini Sk, et al (2024), Development And Validation Of My Choice My Future (Mcmf) Career Indicator: A Comprehensive Indigenous Personality Assessment, *Educational Administration: Theory and Practice*, 30(5), 11177-11193

Doi: 10.53555/kuey.v30i5.4110

ARTICLE INFO

ABSTRACT

The study intricately explores development and validation process of an indigenous assessment tool known as 'My Choice, My Future' (MCMF) Career Indicator. This tool is meticulously crafted through five rigorous stages of thematic exploration aimed at aiding users in aligning their career choices with their unique personalities. Development of the MCMF engaged a diverse array of inputs from experts, including psychologists, career counselors, professionals, educators and researchers spanning across five phases. The phases encompassed identification of 12 core personality traits and creation of six foundational building blocks for each trait which culminated into 72 items. Validation of the items was carried out using triangulation technique. Mapping of traits to 25 career clusters along with their respective domains and required skill sets was conducted ensuring relevance within Indian context. Driving force behind this endeavor was the necessity for a culturally and psychometrically robust career interest assessment instrument tailored specifically for career guidance. Given its intended use in Indian context, the approach leaned towards naturalism rather than positivism. By integrating both etic (Western) and emic (Indian) research approaches, an effective indigenous assessment tool specific to career guidance was successfully developed ensuring its cultural relevance and efficacy.

Keywords: My Choice, My Future Career Indicator, Indigenous personality assessment, career indicator, content validity, triangulation, Vocational personality

JEL Classification: A1, O1, D9, D23

1. Introduction

The escalating recognition of the imperative for culturally pertinent personality assessment tools coupled with the prevalent utilization of unverified locally crafted instruments underscores the significance of formulating an indigenous psychometrically authenticated personality assessment tool tailored to capture the intricacies of the Indian mindset (Priyadharshini et al., 2018). The constructs embedded within such indigenous tools necessitate scrutiny concerning their psychometric attributes and validation via Indian samples. Consequently, these assessment tools would augment the caliber, dependability, and applicability of personality assessment within the Indian socio-cultural milieu. They would also contribute to a more comprehensive and relatively precise conceptualization of personality. Regarding facilitating career choices, an efficacious indigenous personality assessment tool within the Indian framework should amalgamate both etic and emic perspectives. The culture-specific elements may be correlated with universal constructs (Fruyt and Willie, 2013) encompassing psychological and psychosocial dimensions. In the ensuing sections we will elucidate the

utilization of a combined emic-etic approach for devising an indigenous personality assessment tool geared towards facilitating career choices within the Indian context.

Assessment holds significant place when we use information of an individual for career counseling interventions and for introspection. In addition to personality assessments, interest inventories can also be used for employment settings for choosing candidates who are naturally inclined to a particular career (Hansen, 1984). Early researchers theorized interests by exploring subcomponents as well as its determinants (Strong, 1943; Tyler, 1960). Some of the components of interests postulated were self-concept, personality, motivation and so on. The major two determinants of interests were nature (heredity and genetic disposition) and nurture (learning and socialization) (Brown and Lent, 2005). Social cognitive Career theory emphasized the impact of external forces have on development of interests where major focus is to understand determinants of interests than understanding interests itself. This theory underscores significant role played by the socio-cultural factors in interest development. Gottfredson's theory of Circumscription and Compromise (1996) claims social class, sex and intelligence as an influential factor for development of self-concept and this theory views interests as one of the component of self-concept. Theory of Work adjustment (Lofquist and Dawis, 1984) highlighted that work outcomes depends on congruence maintained between interests and work setting. Theory of Work Adjustment underscores importance of interest in predicting satisfaction, performance, and tenure.

Traditionally, there are two divergent schools of thought prevalent in vocational interest assessments (Ackerman and Beier, 2003). The first method involves a thorough investigation of the preferences and dislikes (i.e., interests) of job holders in a particular field so that they may be distinguished from job holders in other fields. For instance, Strong (1943) perspective which relies on similarities of preferences of people within an occupation compared to others. The second method embraces a trait theory strategy to pinpoint vocational interests. Some of the theories in this school of thought conceptualizes traits in a continuum (Adkins and Kuder, 1940) while Holland's (1959) is a typological description of interests. Holland's theory of Vocational Personality explicitly studies interests (Brown and Lent, 2005). According to Holland, interest themes are of six types- Realistic, Investigative, Artistic, Social, Enterprising and Conventional (RIASEC). This theory has driven lot of studies worldwide. There are three popular interest inventories which are frequently used: Self-Directed Search (Holland and Rayman, 2013), Strong Interest Inventory (Harmon et al., 1994) and Campbell interest and Skill Survey (Campbell, 1995). All these instruments comprise of questions that assesses Holland's six types. Numerous investigations attest to robust validity of scales employing Holland's six typologies across heterogeneous demographics (Fauad et al., 1997). Study conducted within Indian milieu unearthed challenges pertaining to conceptual and linguistic congruence for Vocational Preference Inventory rooted in Holland's typologies (Leong et al., 1998). Leveraging insights from Gottfredson's and Social Cognitive theories to elucidate impact of external forces such as cultural and social dynamics on career decision-making and interest formation signifies the necessity for interest inventories tailored to specific contextual exigencies.

Various inquiries have probed prognostic potency of interests' vis-à-vis variables like performance, contentment and tenure. Empirical consensus predominantly favors nexus between interests and performance over job contentment given the latter's multifaceted determinants beyond individual predilections. Holland's typologies and Theory of Work Adjustment reside within realm of Person-Environment (P-E) theories (Brown and Lent, 2005). P-E theories elucidate interplay between individual (P) and environment (E) positing that work behavioral outcomes hinge not solely on P or E variables but on their amalgamation. A study aimed at delineating how interest-environment congruence forecasts job contentment (Cardador et al., 2021) inferred that nature of misalignment delineates interrelation between interest and job satisfaction. A meta-analytical synthesis spanning six decades of vocational inquiry discerned interests as pivotal predictors of workplace efficacy and persistence by Nye et al., 2012. Hoff et al's., (2020) meta-analytical examination affirming predictive efficacy of interests primarily toward performance outcomes and overarching career fulfillment rather than mere job contentment underscores imperative of regarding interest as salient dimension in the realm of performance outcomes.

In this study we explicate the development and validation process of an indigenous personality assessment tool known as 'My Choice, My Future' (MCMF) with the body of support from the trait approach to vocational interest assessment. The tool is meticulously crafted through five rigorous stages of thematic exploration aimed at aiding users in aligning their career choices with their unique personalities. The remainder of the paper is structured as follows: In Section 2 we briefly provide overview of the framework adopted highlighting initial framework and understanding preferences related to career from Indian context. In Section 3 we describe all the five phases: Identifying career specific personality traits, Rationalizing the long list of traits, Item Structuring and Defining, Content Validation of the Instrument using triangulation method followed by Career clustering and Mapping. In Section 4 we summarize and conclude our study.

2. Overview of the Framework

Super (1957) elucidated that personality traits exhibit no straightforward and practically significant correlations with vocational inclinations. This observation might have stemmed from the limited scope of personality assessments utilized during that era which failed to encapsulate entirety of personality dimensions. Subsequent advancements revealed overlap and correlation between vocational preferences and personality dispositions (Bruin 2002; Willie et al., 2010). Vocational predilections constitute pivotal facet of personality bearing implications for career trajectories and educational pursuits (Stoll and Trautwein 2017). In this discourse we explicitly acknowledge pivotal role of personality in shaping an individual's career trajectory. With aim of effectively amalgamating Indian and Western paradigms we scrutinized the theoretical underpinnings of personality assessments for career appraisal. Against the backdrop of prominent career theories such as Theory of Work Adjustment (Dawis 1992), Theory of Vocational Personalities in Work Environment (Holland 1997), Self-concept Theory of Career Development (Super et al., 1996; Herr 1997), Theory of Circumscription and Compromise (Gottfredson 2002; 2005), Social Cognitive Career Theory (Lent et al., 2002) and Multiple Intelligences (Gardner, 2011), Holland's theory emerged as particularly germane to our objectives especially in its portrayal of vocational interest as manifestation of one's personality.

Assessing alignment between career choices and career specific personality enables deeper comprehension of an individual's career aspirations. By probing on various preferences, MCMF determines a person's personality trait based on their specific preferences. The embryonic stage of instrument development necessitates establishment of rudimentary framework to grasp its evolutionary trajectory. This framework delves into fundamental inquiries concerning instrument's *raison d'être*, appropriateness of scale types, methodologies for item development, attributes of both individual and collective items, selection criteria for sample respondents and procedures for ensuring content validity. The study systematically expounds upon five distinct stages of instrument development each intricately linked to one of the aforementioned queries furnishing methodical roadmap to navigate complexities inherent in formulating a robust instrument (as depicted in Table 1).

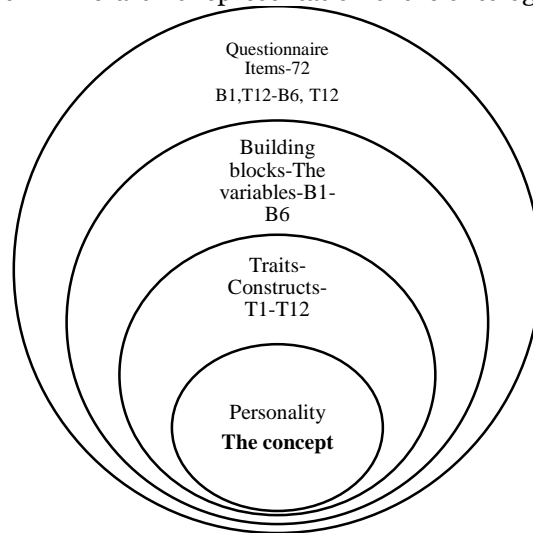
Table 1: Methodical Roadmap

Questions to be Addressed	Answers
Why and what will the instrument measure, i.e., its purpose?	Personality, with specific focus on career related aspects- focusing on the respondents' personality traits, abilities, and experiences, which either are sub-sets of personality, have a very large intersection with the concept
Why and what types of scales will be suitable for use?	Likert scale – This provides an adequate range of responses for the respondents to indicate/match their preferences, including indicators of no match at all.
How could items for the instrument be developed, and what should be the characteristics of the set of items – individually and collectively – in terms of their inter-relationships?	Literature exploration and review, determining research questions, interacting with experts and a sample of the target population
Who should be the sample respondents?	Primarily, students in high and higher secondary schools, and in colleges. Also, professionals in the early stages of their careers.
How should content validity be established in this context?	Through an expert panel consisting of a right mix of practicing psychologists, career counsellors, working professionals and teachers.

Before delving into genesis and construction of MCMF instrument, it is imperative to grasp concept of personality within Indian cultural milieu. Beyond previously discussed rationales for an indigenous instrument it is essential to acknowledge nuanced interpretation of personality in India distinct from Western context where many instruments originated. When scrutinizing global cultures and populations distinctions emerge such as in leadership styles—Paternalism versus Egalitarianism and Individualism versus Collectivism—as evidenced in studies like Boopathi (2014). Across the globe populations' exhibit dual nature: a common component representing personality traits transcending cultures and socio-cultural component mirroring local nuances. India showcases distinct behavioural norms like time management, adherence to rules, hospitality, etc. as highlighted in Hays (2008). Specific scenarios pertinent to Indian populace find reflection in tailored items of MCMF instrument. In Indian discourse "personality" often emphasizes physical appearance over mental and intellectual facets as noted in Srivastava (2012). Acknowledging this we broaden the concept of personality to encompass interests, passions, emotions and strengths aligning with Ackerman and Beier (2003) by considering practical understanding of common users who may not grasp technical definitions. It's crucial to imbue confidence in users by employing terms like interests, strengths and passion which resonate more

readily. Given these premises, this study aims to elucidate developmental journey of MCMF spanning various phases and establish its content validity. The interrelations between concepts and categories are depicted in Figure 1 with term "instrument" encapsulating the entirety of MCMF.

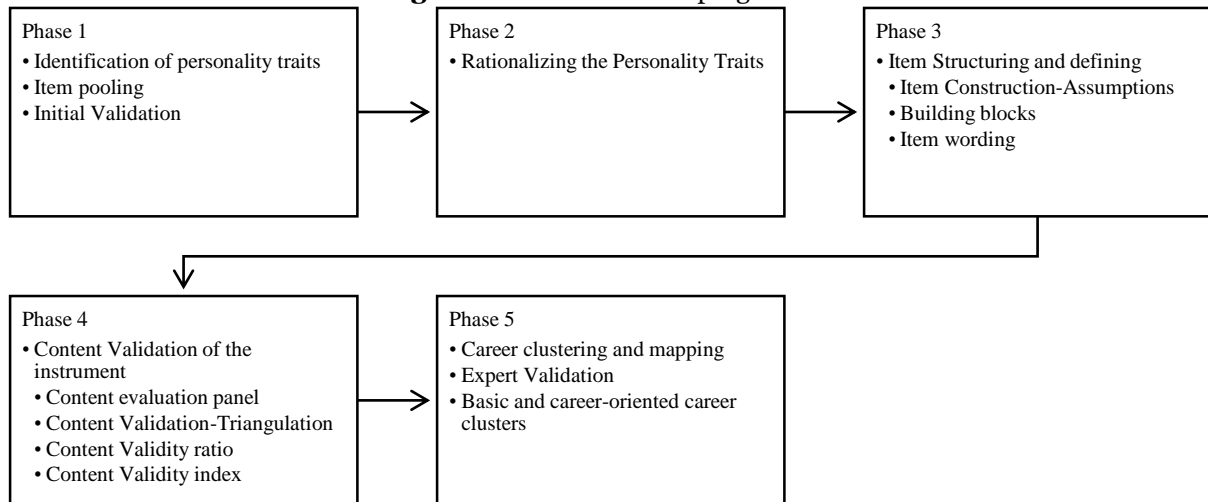
Figure 1 From items to concept – A hierarchic representation of the ontological model of MCMF instrument.



12 traits, each modelled by 6 building blocks resulting in 72 items

As MCMF was meticulously constructed from scratch, the entire trajectory of instrument development was meticulously strategized across various delineated phases. The intricacies of each phase and corresponding activities undertaken therein are delineated in Figure 2.

Figure 2 Phases in developing MCMF



3. Phases in development and validation of MCMF tool

Phase 1: Identifying Vocational Personality Traits

Commencing with recognition of necessity for a valid and reliable indigenous personality assessment tool, a thorough examination of prevalent assessment instruments in India was undertaken through one-on-one interviews and focus group discussions with twenty-five accredited members of the Chennai Counsellors Foundation (CCF). This process served to corroborate existing observations and understand prevailing practices. Notable tools such as MMPI, MBTI, Strong Interest Inventory, Holland’s Occupational Themes, 16PF, NEO-PI-R and Thomas Personality Profiling were identified as preferred and widely used although certain instant online assessment instruments lacked adequate validation. Instruments like MMPI and NEO-PI-R were rooted in Big Five model while Holland’s Occupational Interest Themes distinguished by their psychosocial as well as vocational features served as foundational input for development of MCMF. Leveraging Holland’s instrument facilitated consensus-building process among experts regarding its relevance and applicability within the current context.

Traits frequently cited in literature were incorporated into developmental process sourced from reputable and commonly utilized personality assessment instruments in India. Inputs from CCF experts, existing career search engines and other career-related sources were synthesized to establish robust foundation for identifying personality traits pertinent to Indian career landscapes resulting in an exhaustive list of over 80 traits along with their intersections tailored to diverse workplace environments (Paljug, 2018; Wood, 2018; Basak and Ghosh, 2014).

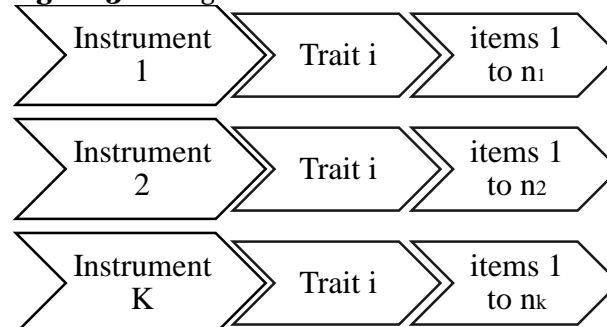
Following initial research and elimination of duplications within intersections roster of 50 distinct personality traits was curated. This list was then presented to separate group of experts comprising psychologists, educators, career counselors and professionals tasked with identifying and ranking traits deemed essential for career success in general context. Despite seemingly large size of 50 traits for ranking it became apparent that this set would undergo significant pruning due to inherent semantic intersections and dependencies among traits. Through meticulous analysis of resulting rankings top 20 traits were discerned based on intersections among experts' inputs minimizing arbitrariness and forming foundation of initial instrument. Table 2 illustrates this inaugural selection of 20 personality traits.

Table 2: Top 20 Ranked Personality Traits

S. No.	Traits	S. No.	Traits
1	Adaptable and Versatile	11	Imaginative and Creative
2	Adventurous and Energetic	12	Independent
3	Communication	13	Logical and Analytical
4	Compassionate	14	Objective
5	Determined and Focused	15	Optimistic
6	Enthusiastic	16	Patient
7	Extrovert	17	Practical and Rational
8	Friendly	18	Reliable
9	Generous and Warm hearted	19	Responsible
10	Humorous	20	Sensing

To gauge the degree to which respondents to MCMF possessed each of twenty identified traits derived from an initial pool of fifty a systematic approach was adopted. Initially items corresponding to each trait were identified from source instruments featuring respective trait. In consolidating these items it became apparent that some traits were represented by similar items across different sources albeit with varied interest expressions. All items corresponding to all traits were aggregated to form an initial comprehensive list comprising 210 items. This extensive inventory of interests aimed to encapsulate diverse facets of career specific personality. Literature and open sources were scrutinized anew to pinpoint distinct items for each trait potentially bolstering content validity. Figure 3 presents item generation from source instruments. This exhaustive list of 210 items designed to assess 20 personality traits yielded approximately 8 to 10 items per trait a compromise between comprehensiveness and manageability as advocated by Hinkin (1998). Initial validation of the instrument comprising 210 items measuring 20 personality traits was conducted through content validation involving a panel of 25 experts comprising psychologists, teachers, career counsellors and professionals. This validation process aimed to solicit and comprehend experts' perspectives on traits and their constituent items in context of career choices. Several observations emerged from this process including instrument's lengthiness and need to revisit selection of 20 personality traits due to noticeable intersections and overlaps among them caused by corresponding items. Some items were relevant to multiple traits while others did not strongly resonate with Indian context highlighting challenge of ensuring cultural relevance in assessment tools. This led to recognition of need for rationalizing long list of items to ensure parsimony and applicability for representing personality traits in Indian context.

Figure 3: Item generation from source instruments



Where,
 K = Total number of source instruments

Trait i – the trait that is referred uniformly in all instruments.

$n_1+n_2+\dots+n_k$ are the total number of items in the questionnaire

Phase 2: Rationalizing list of Personality Traits

Based on the initial validation and suggestions by the experts, the initial list of 20 personality traits and their constituent interest items were revisited. The experts suggested that traits that intersected/overlapped with each other to a great extent (due to the constituent items) be replaced by a single, rationalized trait. Also, distinctive traits had to be retained, and given new appropriate labels, and totally new traits added, if found necessary. This process led to the 12 traits used in MCMF and formally validated for content by the experts. Table 3 gives the list of the 12 traits obtained by reducing the initial list of 20 traits.

Following the initial validation process and feedback from experts a re-evaluation of initial list of 20 personality traits and their constituent items was undertaken. Experts recommended consolidating traits that exhibited significant intersections or overlaps primarily due to shared constituent items into a single coherent trait. Distinct traits were retained under new labels while entirely new traits were introduced as deemed necessary. The iterative process culminated in refinement of traits resulting in the selection of 12 traits for inclusion in MCMF and was subsequently subjected to formal content validation by experts. Table 3 provides a comprehensive overview of the 12 finalized traits derived from initial list of 20 traits through a rigorous rationalization process.

Table 3: List of personality traits post-initial validation phase

S. No.	Initial Set (Alphabetical order)	Status	MCMF traits	Personality traits
1	Adaptable/Versatile	Retained		Adaptable/Versatile
2	Adventurous/ Energetic	Retained with modified new label		Adventurous/ Risk-taking
3	Communication	Retained with modified new label		Communicative/Expressive
4	Compassionate	Retained with modified new label		Compassionate/Generous
5	Determined/ Focused	Retained		Determined/ Focused
6	Enthusiastic	Removed (was captured by the variables Adventurous and Extrovert)		
7	Extrovert	Retained		Extroverted
8	Friendly	Removed (was captured by the variable Extrovert)		
9	Generous/ warm hearted	Modified and retained in combination with the variable Compassionate		
10	Humorous	Removed (was considered by the experts to be less significant)		
11	Imaginative/ Creative	Retained		Creative/ imaginative
12	Independent	Retained		Independent
13	Logical/Analytical	Retained with modification		Analytical
14	Objective	Removed (was captured by the variable Determined and Analytical)		
15	Optimistic	Removed (was captured by the variable Determined)		
16	Patient	Removed (was considered by the experts to be less significant)		
17	Practical/Rational	Removed (was captured by the variable Analytical)		
18	Reliable	Combined		Reliable/Responsible
19	Responsible			
20	Sensing	Removed (was captured by the variable Analytical)		
21		Newly added (recommended by the experts)		Discipline
		Newly added (recommended by the experts)		Hands-on

Phase 3: Item Structuring and Defining

Subsequent to finalization of roster of 12 traits an exhaustive undertaking commenced to devise instrument items for each trait originating from a clean slate. Emphasizing necessity of tailoring personality instrument to indigenous contexts existing source instruments were deliberately excluded from MCMF development process necessitating an entirely innovative approach. This foundational endeavor was underpinned by several

conjectures: a) each trait comprises discernible 'building blocks' extrapolated from their delineations and interpretations in scholarly literature; b) these building blocks though non-orthogonal maintain independence as evidenced by varied qualifiers in existing research literature; c) each building block can be represented by corresponding items or statements ensuring instrument's adaptability and evolution within framework defined by 12 traits; d) traits exhibit diverse manifestations across varied contexts acknowledging epistemological autonomy of building blocks; e) plethora of building blocks employed to assess trait outweighs need for redundancy in instrument items in line with indigenization endeavor; f) multitude of items or building blocks augments resilience of traits while adhering to parsimony principles by constraining overall number of building blocks and items to strike delicate equilibrium between efficacy and instrument compactness. These postulations form bedrock of conceptualization and formulation of MCMF steering its trajectory towards comprehensive and succinct personality appraisal tool.

The stipulations for MCMF were delineated as follows: 1) instrument's respondents must possess ability to comprehend straightforward English. 2) Items should be pertinent for individuals aged between 14 and 22 encompassing students from grades 9 to 12 and undergraduate students as well as those aged between 23 and 30 constituting early career professionals. 3) Instrument's items ought to be gender-neutral. 4) Items, events, incidents and actions should predominantly resonate with targeted age groups. 5) Instrument's items should remain impartial concerning geographic location given vast socio-cultural diversity prevalent in India. 6) Economic status of test-takers should hold no relevance in relation to the design of MCMF items.

In pursuit of more lucid comprehension of 12 traits, an in-depth examination of their definitions and interpretations as delineated in literature was undertaken. Drawing upon these insights plethora of items embodying and characterizing these traits were crafted subsequently integrated into initial version of the instrument. The inaugural trait subjected to characterization was 'Adaptable/Versatile'. During formulation of initial items it became evident that each item encapsulated an underlying component reflective of distinct aspect of trait. For instance an item such as "I like to acquire new skills if my work demands" epitomized respondent's inclination towards "learning". Similarly item "Even if I disagree strongly with my team members (e.g., in cricket, throw ball, football, basketball, etc.), I adjust and co-operate with them to achieve our common goal" exemplified respondent's demonstration of "team-spirit". Both "interest in learning" and "team-spirit" seamlessly corresponded to trait 'Adaptable/Versatile' elucidating its multifaceted nature. These facets were observed to maintain epistemological independence notwithstanding their alignment with same trait. Subsequent identification of other facets within trait further enriched its characterization. Termed as 'building blocks' these facets collectively delineated personality trait in question facilitating its operational definition. For instance operationalization of trait 'communicative/expressive' was elucidated through its corresponding building blocks detailed in Table 4.

Table 4: Sample building blocks for the construct 'Communicative/Expressive'

S.No	Building Blocks	Explanation
1	Richness of expression	An individual who uses examples and analogies to make people understand him/her
2	Clarity of expression	An individual's capability to express oneself clearly through simple and cogent use of language
3	Absence of stage fright	A person who is comfortable when facing large audiences and has good public speaking skills
4	Confidence in expression	An individual who knows what he/she is talking about and communicates it with confidence, and also accepts what he/she is ignorant of.
5	Perspective building	A person who while talking to others, listens more than he/she talks
6	Clarity disposition	An individual who does not hesitate to get doubts clarified when he/she does not understand others

The honing of 12 personality traits underwent meticulous scrutiny of their definitions and interpretations unveiling intricate facets entwined within each trait. These facets revealed disparate dimensions of same trait accentuating its multifaceted essence. Harnessing these distinct elements as 'building blocks' facilitated crafting and delineation of corresponding items within the MCMF instrument providing constructive scaffold amid challenges of its inception ex nihilo. Amidst nuanced considerations of linguistic-semantic subtleties and epistemological nuances our endeavor ensured equitable portrayal of traits adhering staunchly to principle of parsimony in fashioning concise yet exhaustive assessment apparatus. By stipulating six building blocks per trait a delicate equilibrium between efficacy and instrument size was achieved validated by expert appraisals thereby upholding tenets of equitability and parsimony.

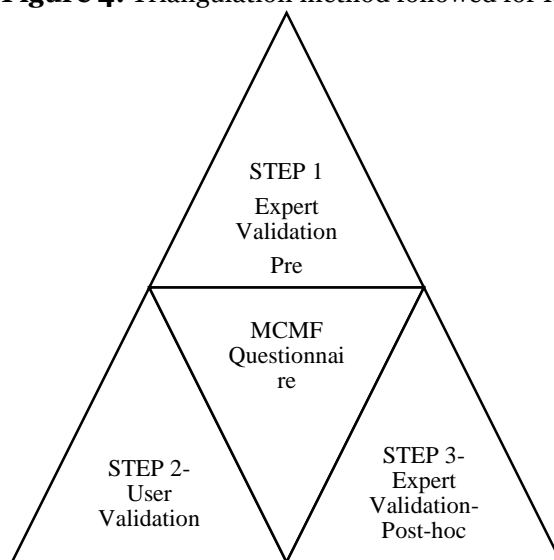
The ensuing phase of item formulation prioritized imperative of indigenization tailoring items to resonate harmoniously with India's cultural and situational milieu. Through infusion of culturally pertinent exemplars and negatively framed inquiries our instrument aimed at augmenting comprehension while mitigating response biases. Integration of reverse-coded items not only fortified instrument's construct validity but also

instigated more deliberative responses evincing nuanced comprehension of respondents' personas. Following iterative refinements ultimate pre-pilot iteration comprising 72 items garnered resounding acclaim from diverse pool of respondents attesting to its accessibility, pertinence, comprehensiveness and fidelity in reflecting individual temperaments. Collaborative scrutiny by experts and parental stakeholders further buttressed instrument's facial validity affirming its resilience and applicability across multifarious domains.

Phase 4: Content Validation of the Instrument

To ensure relevance and fidelity of items within instrument vis-a-vis enumerated traits a meticulous content analysis of MCMF instrument was undertaken. Overarching aim was to validate and refine instrument items by soliciting additional insights from subject matter experts. Adopting multi-faceted approach to elucidate intricacies and nuances of instrument items Triangulation method was employed to ensure robust validation. Triangulation although seemingly simplistic wields considerable efficacy by cross-referencing and juxtaposing outcomes of disparate methods or sources pertaining to singular subject. By amalgamating inputs from multiple observers the method surmounts limitations and inherent biases associated with single-method and single-observer validation thereby bolstering credibility and validity of findings. Various scholarly works have expounded upon concept of triangulation elucidating its capacity to furnish comprehensive and well-rounded depiction of phenomenon under scrutiny. As articulated by Altrichter et al., (2005) triangulation engenders more nuanced and equitable portrayal of observed phenomenon enhancing depth and fidelity of analysis.

Figure 4: Triangulation method followed for MCMF validation



Initial phase of validation embarked upon formation of 'content evaluation panel' comprising 50 experts aligning with guidelines proposed by Lawshe (1975). Configuring composition of this panel for validating an instrument aimed at discerning personality traits and their relevance to diverse career trajectories posed intricate challenges. Contemplations circled around whether panel members should boast diverse array of vocational backgrounds or exhibit an astute comprehension of personality traits germane to multifaceted workplaces. In response to these quandaries selected panel encompassed individuals endowed with nuanced understanding of central tenets incorporating educationalists adept at discerning linguistic nuances and contextual subtleties in conjunction with domain experts such as Psychology Professors, Career Counsellors and Practicing Professionals. Adhering to Gilbert and Prion's (2016) recommendation advocating for panel size ranging between 5 to 10 members decision to expand panel to encompass 50 experts was underpinned by meticulous and culturally attuned construction of MCMF aimed at fostering holistic validation process tailored to instrument's distinctive ethos. Table 5 presents Profile of experts in content evaluation and validation panel

Table 5. Profile of experts in content evaluation and validation panel

Experts (n=50)	Percentage
School teachers	30%
Professors	30%
Career Counsellors	24%
Working Professionals	16%

In addition to validating instrument ensuring attainment of MCMF's objectives regarding item wording was deemed imperative. Expert opinions were solicited to gauge simplicity of language, conceptual clarity, representation fidelity, relevance and comprehensiveness.

In the initial phase, experts were furnished with detailed instructions elucidating operational definitions of each trait encompassed by instrument. Following framework established in version 1 of instrument, inspired by Lawshe's (1975) seminal scholarship, experts were tasked with aligning items with traits they perceived each item to represent (refer to fig.5 below).

Figure 5: Content validation sample

1) I seek feedback and advice from my family, relatives and friends *

	Best Match	Next Best	Distant Match	No Match
Adaptability/Versatility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Adventurous/Risk-taking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Analytical	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communicative/Expressive	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Compassion/Generosity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Creative/Imaginative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Determination/Focus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Discipline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Extrovert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Hands-on	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Independence	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reliability/Responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

In evaluation of each trait, experts were entrusted with intricate task of classifying items into four distinct categories: "Best match," "Next best," "Distant match," and "No match." Items designated as "Best match" were deemed to closely embody the trait, while those falling under "Next best" exhibited a relatedness albeit not as profoundly. "Distant match" was assigned to items with more remote associations whereas "No match" signaled a complete lack of alignment with any of traits. Responses from all panelists were consolidated to aggregate number of "best match" ratings for each item informing computation of Content Validity Ratio (CVR) as per Lawshe's (1975) methodology. With establishment of content evaluation panel, subsequent phases focused on scrutinizing both Content Validity Ratio (CVR) and Content Validity Index (CVI) to ascertain content validity of instrument. CVR serving as pivotal item statistic for determining item retention or dismissal was leveraged to assess degree to which items accurately reflect their corresponding traits. Following Lawshe's stipulations items securing "best match" rating from more than half of panelists (≥ 35 out of 50) were adjudged to possess content validity to significant extent. Subsequent to receiving feedback from expert, Lawshe's CVR formula as outlined below was employed to calculate content validity of each item in MCMF.

$$CVR = \frac{n_{bm} - N/2}{N/2}$$

Where,

n_{bm} is the number of panelists identifying the item as best match
 N is the total number of panelists ($N/2$) is half the number of panelists

In initial round of assessment CVR was computed for all 72 items within instrument. Primary aim was to identify and rectify items that did not align with defined dimensions exhibited overlapping traits or were deemed excessively skewed towards social desirability. Upon collating responses from entire panel of 50 experts tally of "best match" and "next best" designations for each item was determined. Prevalence of "next best" responses was particularly scrutinized to ascertain any notable associations with identified "best match" items. Out of total pool of 72 items Table 6 delineates 40 items that attained CVR value of ≥ 0.4 , signifying that they were deemed as "best match" by 35 or more experts. These items were retained unaltered for subsequent version development.

Table 6: Content Validity Ratio for items in the MCMF questionnaire

Items	No. of "best match"	CVR	Items	No of "best match"	CVR
Item 2	43	0.72	Item 39	35	0.40
Item 3	36	0.44	Item 40	46	0.84
Item 4	39	0.56	Item 44	40	0.60
Item 5	39	0.56	Item 45	39	0.56
Item 9	35	0.40	Item 50	37	0.48
Item 10	41	0.64	Item 54	41	0.64
Item 14	37	0.48	Item 55	40	0.60
Item 16	46	0.84	Item 56	43	0.72
Item 17	36	0.44	Item 61	39	0.56
Item 18	39	0.56	Item 62	39	0.56
Item 20	37	0.48	Item 63	45	0.80
Item 21	40	0.60	Item 64	39	0.56
Item 24	38	0.52	Item 65	46	0.84
Item 25	35	0.40	Item 66	41	0.64
Item 27	36	0.44	Item 67	41	0.64
Item 29	47	0.88	Item 68	37	0.48
Item 30	36	0.44	Item 69	37	0.48
Item 31	37	0.48	Item 70	38	0.52
Item 34	36	0.44	Item 71	42	0.68
Item 38	41	0.64	Item 72	43	0.72

During second phase 32 items requiring adjustments underwent reassessment based on distribution of "best match" and "next best" responses they elicited. Items garnering 30 to 34 "best match" ratings underwent minor refinements aimed at enhancing their alignment with target trait. For example, an item originally intended to assess "Discipline" displayed a significant overlap with "Determination/Focus" according to expert feedback. Despite 32 experts rating it highly for "Discipline," 18 experts also linked it with "Determination/Focus." Modifications were implemented to mitigate this overlap and ensure precise trait representation. Items accruing fewer than 30 "best match" ratings underwent complete overhauls with fresh items developed to supplant them. Items demonstrating pronounced overlaps with unintended traits were excised from instrument with novel items crafted to embody intended "building-block." All 32 items with $CVR < 0.4$ underwent adjustments and were resubmitted to content evaluation panel after three-week interval to mitigate potential memory biases. Subsequent to experts' reassessment CVRs of modified items were recalculated with Table 7 delineating those items within modified set achieving $CVR \geq 0.4$.

Table 7: Content Validity Ratio-Round 2

Items	No. of "best match"	CVR	Items	No. of "best match"	CVR
Item 1	50	1.00	Item 37	50	1.00
Item 6	50	1.00	Item 41	50	1.00
Item 7	50	1.00	Item 43	44	0.76
Item 8	42	0.68	Item 46	50	1.00
Item 11	43	0.72	Item 47	50	1.00
Item 13	50	1.00	Item 49	50	1.00
Item 19	42	0.68	Item 52	41	0.64
Item 23	50	1.00	Item 53	50	1.00
Item 28	43	0.72	Item 59	50	1.00
Item 35	50	1.00	Item 60	50	1.00
Item 36	50	1.00			

During third iteration 21 items from previous round exhibited a $CVR \geq 0.4$ (refer to Table 8) indicating satisfactory content validity. Remaining 11 items underwent further modifications with some being replaced entirely by new items aligned with experts' "best match" responses while ensuring maintenance of six items per trait. Following these adjustments reworked 11 items underwent another round of validation by same experts adhering to original instructions provided. Table 8 below presents the CVR values for this final set of 11 items.

Table 8: Content Validity Ratio-Round 3

Items	No. of "best match"	CVR
Item 12	50	1.00
Item 15	40	0.60
Item 22	37	0.48
Item 26	38	0.52

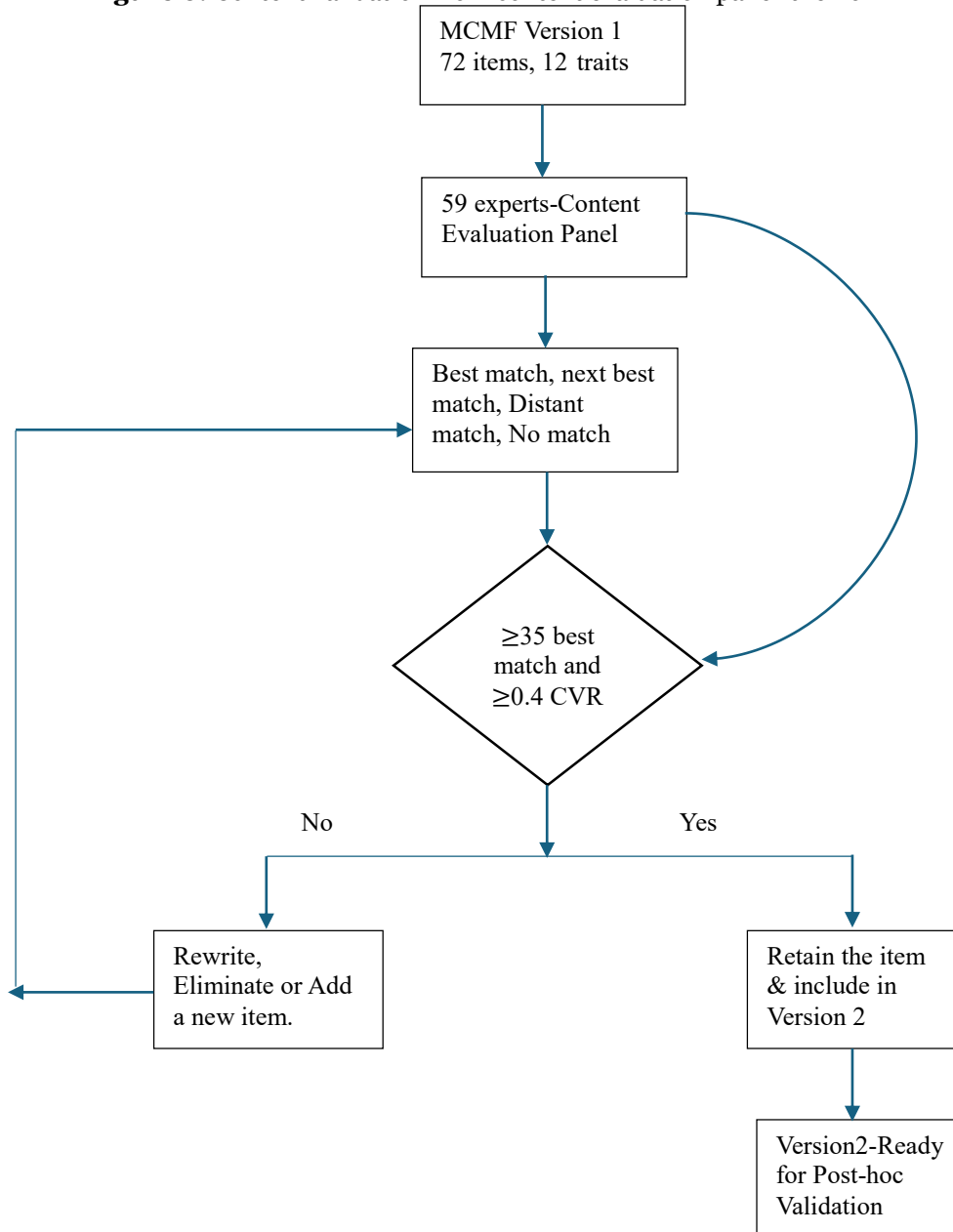
Item 32	37	0.48
Item 33	36	0.44
Item 42	50	1.00
Item 48	50	1.00
Item 51	50	1.00
Item 57	50	1.00
Item 58	36	0.44

Following numerous iterations of instrument's items and three successive rounds of Content Validity Ratio (CVR) assessment, all 72 items underwent content validation. Quantity of validated items in each round is delineated in Table 9 below. Subsequent to validation of each item individually, content validity of entire instrument was determined through calculation of the Content Validity Index (CVI).

Table 9: Number of items validated in each round

Traits	No. of items validated		
	Round 1	Round 2	Round 3
<i>Basic Personality Traits</i>			
Determined/Focused	3	3	
Disciplined	4	1	1
Independent	1	5	
Reliable/responsible	2	2	2
<i>Career Oriented Personality Traits</i>			
Adaptable/Versatile	2	4	
Adventurous/Risk-taking	5		1
Communicative/Expressive	4	2	
Compassionate/Generous	4	2	
Creative/Imaginative	4	1	1
Extroverted	4		2
Hands-on	3	1	2

Content Validity Index (CVI) represents average of CVR values for items surpassing CVR threshold and retained for final version of instrument as elucidated by Gilbert and Prion (2016). Overarching CVI for MCMF instrument stood at 0.70. According to Tilden et al., (1990) CVI values equal to or exceeding 0.70 are conventionally employed to ascertain CVI of an instrument. Flowchart delineated in Figure 6 provides comprehensive outline of procedural steps undertaken in evaluating content validity as guided by expert validation panel. Subsequent to adhering to Triangulation model previously mentioned subsequent content validation phase engaged users of MCMF instrument specifically target demographic comprising senior school and college students typically individuals aged 16 years and above.

Figure 6: Content validation from content evaluation panel-the flow

Following inaugural validation by experts MCMF tool underwent scrutiny from 282 senior school and college students. Administered via an online platform this evaluation aimed to gauge users' grasp of instrument's content and its congruence with their personalities as reflected in generated career reports. Upon completion of exhaustive 72-item assessment, students furnished feedback via targeted inquiries. Feedback underscored resonance of MCMF instrument with users with a consensus on its accessibility, pertinence, comprehensiveness and precision in delineating individual traits. This user validation phase served as a precursor to subsequent post-hoc validation involving original expert panel tasked with content evaluation. Upon establishing Content Validity Ratios (CVRs) and Content Validity Index (CVI) through three distinct rounds in Step 1 final iteration of MCMF instrument comprising definitive item set underwent conclusive post-hoc validation. The aim was to ensure that each item attained CVR of ≥ 0.40 while overall CVI of instrument reached ≥ 0.80 . Upon soliciting responses from expert panel CVRs of items and instrument's CVI were computed. Table 10 presents CVR values for items. Post-hoc content validation revealed robust CVR of ≥ 0.6 for all items within MCMF instrument. According to Polit et al., (2007) item achieving CVR of 0.78 or higher with three or more experts signifies commendable content validity. In contrast MCMF instrument validated by 50 experts with all items surpassing a CVR of ≥ 0.6 demonstrates exceptionally high content validity. Following post-hoc CVR calculations instrument's CVI was determined.

Table 10: Content Validity Ratio for the items in MCMF-Post-hoc

Items	No. of "Best match"	CVR	Items	No. of "Best match"	CVR
Item 1	50	1.00	Item 37	48	0.92
Item 2	50	1.00	Item 38	50	1.00
Item 3	42	0.68	Item 39	50	1.00
Item 4	50	1.00	Item 40	50	1.00
Item 5	43	0.72	Item 41	50	1.00
Item 6	50	1.00	Item 42	46	0.84
Item 7	50	1.00	Item 43	44	0.76
Item 8	44	0.76	Item 44	46	0.84
Item 9	50	1.00	Item 45	48	0.92
Item 10	47	0.88	Item 46	48	0.92
Item 11	44	0.76	Item 47	45	0.80
Item 12	47	0.88	Item 48	44	0.76
Item 13	47	0.88	Item 49	50	1.00
Item 14	48	0.92	Item 50	42	0.68
Item 15	44	0.76	Item 51	50	1.00
Item 16	50	1.00	Item 52	46	0.84
Item 17	44	0.76	Item 53	45	0.80
Item 18	43	0.72	Item 54	42	0.68
Item 19	50	1.00	Item 55	46	0.84
Item 20	47	0.88	Item 56	50	1.00
Item 21	50	1.00	Item 57	50	1.00
Item 22	40	0.6	Item 58	43	0.72
Item 23	47	0.88	Item 59	50	1.00
Item 24	50	1.00	Item 60	44	0.76
Item 25	44	0.76	Item 61	41	0.64
Item 26	45	0.80	Item 62	43	0.72
Item 27	46	0.84	Item 63	47	0.88
Item 28	50	1.00	Item 64	50	1.00
Item 29	50	1.00	Item 65	50	1.00
Item 30	45	0.80	Item 66	50	1.00
Item 31	44	0.76	Item 67	48	0.92
Item 32	43	0.72	Item 68	48	0.92
Item 33	47	0.88	Item 69	50	1.00
Item 34	47	0.88	Item 70	47	0.88
Item 35	47	0.88	Item 71	46	0.84
Item 36	44	0.76	Item 72	46	0.84

The Comprehensive Validation Index (CVI) for entire instrument reached an impressive 0.87. According to Davis (1992) CVI surpassing 0.80 is preferable for robust instrument validation. Subsequent post-hoc validation unveiled heightened Content Validity Ratios (CVRs) for each item along with an augmented CVI for overarching MCMF instrument. Given its CVI of 0.87 logical progression for MCMF entails establishing its reliability and proceeding with pre-pilot testing to further substantiate its validity. While this phase has been concluded it will be delineated in separate comprehensive study owing to extensive content it encompasses.

Phase 5: Career clustering and Mapping

Ensuing segment delineates process of delineating career clusters alongside their corresponding skill sets. To pinpoint potential career avenues tailored to diverse personality trait combinations exhaustive compilation of careers was meticulously curated through accessible resources. This endeavor yielded comprehensive array of over 300 potential career options. A methodical and coherent approach was employed to distill this extensive list into definitive career clusters, paths and associated skill sets. This involved thorough examination of authoritative sources such as O*Net, Employment News India and Advance CTE. Employment News India furnished catalog comprising twenty-five distinct career clusters accompanied by elucidations of their respective career paths and requisite skill sets as detailed in adapted information presented in Table 11 below.

Table 11: List of career clusters, career domains, skills and abilities required

Career clusters	Career domains	Skills and abilities required
Agriculture and Food	Agriculture, Food Products and Processing Systems, Warehousing, Dairy, Poultry, Livestock, Fishery	Flexible, experimentation, handle uncertainty, quick learning, working outdoors, use

		of appropriate technology, attention to detail, risk taking
Architecture	Interior Design, Design, Landscape architecture, Urban planning, Infrastructure Projects	Mathematical reasoning, analytical thinking, aesthetic sense, creative imagination, visual-spatial sense, design an drawing, blue prints
Arts, Design	Advertising, Movies, Writer, Broadcasting, Television, Social Media, Performing Arts, Visual Arts, Media Communication, Fashion Design, Advertising, Anchoring, Animation, Modelling, Actor, Musician, Film Making, Painter, Graphic Design	Creative imagination, artistic expression, Visual-spatial sense, aesthetics, quick learning, spontaneous, compose, produce, dance, drama, sculpture
Business, Management and Administration	Administrative and Information Support, Business Analysis, Financial Management, General Management, Marketing, Corporate Communication, Brand Management, Customer Relations, Human Resource Management, Public relations, Supply Chain and Logistics, Store Management, Agribusiness	Managing, Resource Allocation, Strategic planning, resource allocation, leadership, coordination of people and resources, negotiation, persuade.

Culmination of this process yielded twenty-five meticulously curated career clusters meticulously arranged in alphabetical order. These clusters integral to final iteration of MCMF encompassed diverse array of disciplines ranging from agriculture and food to architecture, art, design and beyond. Included among these are domains such as business, management and administration alongside sectors like defense, education and training. The comprehensive list further extends to fields such as engineering and technology, entertainment, entrepreneurship and environmental services reflecting broad spectrum of vocational opportunities. Noteworthy inclusions encompass finance, government and public administration, hospitality and tourism, human services and information technology among others. Each cluster is characterized by its distinct career domains and corresponding skills and proficiencies requisite for success as exemplified in Table 5 offering succinct overview of this comprehensive framework.

The final roster of career clusters and their corresponding personality traits underwent meticulous scrutiny and validation engaging in separate deliberations with diverse cohort of professionals. This esteemed Experts Panel comprising 75 working professionals representing varied career clusters alongside 25 career counsellors played pivotal role in this validation process. Each expert was presented with two comprehensive lists—a compendium of twelve personality traits and catalog of twenty-five career clusters—and tasked with independently aligning traits with clusters. The working professionals were further tasked with identifying and prioritizing top five personality traits deemed most crucial within their respective career domains. For each career cluster three working professionals contributed their insights ranking traits pivotal for success in their respective fields. Career counsellors offered their perspectives rating significance of each trait within top five. A sample excerpt from this validation process featuring input from three experts specializing in defense and twenty-five career counsellors is exemplified in Table 12. While three experts unanimously ranked the trait "Adaptable/Versatile" as second twenty-one career counsellors positioned it within the top five. By extrapolating these rankings alongside concurrence of career counsellors definitive set of paramount traits for careers in defense was delineated comprising "Adventurous/Risk-taking," "Adaptable/Versatile," "Analytical," "Reliable/Responsible," and "Disciplined."

Table 12: Matching Personality traits with a career in Defense-Expert Validation

YOUR AREA OF WORK: DEFENSE				
Qualities (to be ranked)	Rank the top 5 qualities you think are most important in your work			Career Counsellors n=25
	Expert 1	Expert 2	Expert 3	
Adaptable/Versatile	2	2	2	21
Adventurous/Risk-taking	1	1	1	22
Analytical	5	3	3	19
Communicative/Expressive				
Compassionate/Generous				
Creative/Imaginative				
Determined/Focused				15
Disciplined	3	4	5	18
Extroverted				
Hands-on		5		

Independent				
Reliable/responsible	4		4	19

From comprehensive mapping of traits provided by each expert and career counsellor profound revelation emerged: certain traits consistently surfaced among top five across diverse career clusters. Attributes such as "Disciplined," "Independent," "Reliable/Responsible," and "Determined/Focused" exhibited unwavering prominence across varied career domains. This intriguing consistency hinted at their universal significance transcending specific vocations thus prompting their classification as "Basic Personality Traits." These fundamental traits were deemed indispensable serving as foundational pillars applicable to all career paths. Following meticulous scrutiny of expert mappings these four foundational traits—determination/focus, discipline, reliability/responsibility and independence—were singled out as basic personality traits essential across spectrum of careers. Remaining eight traits out of the twelve were categorized as career-oriented personality traits characterized by their relative specificity to distinct career trajectories. This dichotomy delineated basic personality traits as those paramount to all professions while career-oriented traits catered to unique demands of specific vocations. Guided by this classification and expert validation top three most crucial career traits were identified for each career cluster from the pool of career-oriented personality traits.

4. Way Forward

The study worked towards putting together a comprehensive indigenous personality assessment tool to facilitate career counselling interventions. The study augments existing career guidance and counselling literature in the following ways;

1. An indigenous psychometric instrument with proven content validity to measure personality traits which has a bearing on career interests. The MCMF encompassed a structure of 12 personality traits with a combination of basic and career orientated traits which cater to various career expectations specific to India.
2. Identification of 25 career clusters befitting Indian context.
3. Aligning the 8 career oriented traits with various career clusters which facilitates an informed decision making with respect to career choice.

Drawing on a trait approach to vocational interests and basing the anchor to Holland's (1959), MCMF was developed integrating etic-emic approach. The content validity of the MCMF has been fairly proven by five rigorous steps of instrument development, appropriate expert validation, and triangulation. Way forward for MCMF research is confirming the hierarchical structure of personality traits with its six building blocks to establish the construct validity.

Acknowledgement / Declaration

We express our profound gratitude to Bodhbridge Educational Services Pvt Ltd, Chennai, India for developing the tool "My Choice My Future" (MCMF) and their magnanimous financial backing which has been instrumental in facilitating this research endeavour.

REFERENCE

1. Ackerman, P. L., & Beier, M. E. (2003). Intelligence, personality, and interests in the career choice process. *Journal of Career Assessment*, 11(2), 205-218. <https://doi.org/10.1177/1069072703011002006>
2. Adkins, D. C., & Kuder, G. F. (1940). The relation of primary mental abilities to activity preferences. *Psychometrika*, 5, 251-262.
3. Altrichter, H., Feldman, A., Posch, P., & Somekh, B. (2005). *Teachers investigate their work: An introduction to action research across the professions*. London: Routledge - Taylor & Francis Group. <https://doi.org/10.4324/9780203978979>
4. Basak, R., & Ghosh, A. (2014). Personality traits and different career stages – A study on Indian school teachers. *Procedia - Social and Behavioral Sciences*, 140, 506-510. <https://doi.org/10.1016/j.sbspro.2014.04.461>
5. Boopathi, S. N. (2014). A detailed comparison of Finland and India through Hofstede & Globe study. *Global Review of Research in Tourism, Hospitality and Leisure Management*, 1(1), 72-101.
6. Bruin, G. P. (2002). The relationship between personality traits and vocational interests. *SA Journal of Industrial Psychology*, 28(1), 49-52.
7. Brown, S. D., & Lent, R. W. (Eds.). (2005). *Career development and counseling: Putting theory and research to work*. New York: John Wiley & Sons.
8. Campbell, D. P. (1995). The Campbell Interest and Skill Survey (CISS): A product of ninety years of psychometric evolution. *Journal of Career Assessment*, 3(4), 391-410. <https://doi.org/10.1177/106907279500300410>

9. Cardador, M. T., Damian, R. I., & Wiegand, J. P. (2021). Does more mean less?: Interest surplus and the gender gap in STEM careers. *Journal of Career Assessment*, 29(1), 76-97. <https://doi.org/10.1177/1069072720930658>
10. Davis, L. L. (1992). Instrument review: Getting the most from a panel of experts. *Applied Nursing Research*, 5(4), 194-197. [https://doi.org/10.1016/S0897-1897\(05\)80008-4](https://doi.org/10.1016/S0897-1897(05)80008-4)
11. Dawis, R. V. (1992). The individual differences tradition in counseling psychology. *Journal of Counseling Psychology*, 39(1), 7-19. <https://doi.org/10.1037/0022-0167.39.1.7>
12. Employment News Weekly. (n.d.). Retrieved from <http://employmentnews.gov.in/NewEmp/careers.aspx>
13. Fouad, Nadya A. (2007). Work and vocational psychology: Theory, research, and applications. *Annual Review of Psychology*, 58(1), 543-564. <https://doi.org/10.1146/annurev.psych.58.110405.085713>
14. Fruyt, F., & Wille, B. (2013). Cross-cultural issues in personality. In Christiansen & Tett (Eds.), *Handbook of personality at work*. New York, NY: Brunner-Routledge.
15. Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.
16. Gilbert, G. E., & Prion, S. (2016). Making sense of methods and measurement: Lawshe's content validity index. *Clinical Simulation in Nursing*, 12(12), 530-531. <https://doi.org/10.1016/j.ecns.2016.08.002>
17. Gottfredson, L. S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown & Associate (Eds.), *Career choice and development*, 179-232.
18. Gottfredson, L. S. (2002). Gottfredson's theory of circumscription, compromise, and self-creation. In D. Brown & Associate (Eds.), *Career choice and development* (4th Ed., pp. 85-148). San Francisco, CA: Jossey-Bass.
19. Gottfredson, L. S. (2005). Applying Gottfredson's theory of circumscription and compromise in career guidance and counseling. In S. D. Brown & R. T. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 71-100). Hoboken, NJ: Wiley.
20. Harman, G. (1994). Student selection and admission to higher education: Policies and practices in the Asian region. *Higher Education*, 27(3), 313-339. <https://doi.org/10.1007/BF01432073>
21. Hansen, J. C. (1984). The measurement of vocational interests. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (pp. 99-136). New York: Wiley.
22. Hays, J. (2008). Indian character and personality. Retrieved from http://factsanddetails.com/india/People_and_Life/sub7_3c/entry-4166.html
23. Herr, E. (1997). Super's life-span, life-space approach and its outlook for refinement. *The Career Development Quarterly*, 45(3), 238-246.
24. Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. *Organizational Research Methods*, 1(1), 104-121. <https://doi.org/10.1177/109442819800100106>
25. Hoff, K. A., Song, Q. C., Wee, C. J., Phan, W. M. J., & Rounds, J. (2020). Interest fit and job satisfaction: A systematic review and meta-analysis. *Journal of Vocational Behavior*, 123, 103503. <https://doi.org/10.1016/j.jvb.2020.103503>
26. Holland, J. L. (1959). A theory of vocational choice. *Journal of Counseling Psychology*, 6(1), 35.
27. Holland, J. H. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd Ed.). Englewood Cliffs, NJ: Prentice Hall.
28. Holland, J. L., & Rayman, J. R. (2013). The Self-Directed Search. In *Advances in vocational psychology* (pp. 55-82). Routledge.
29. All India Council for Technical Education, India Skill Report (2019). Retrieved from <https://www.aicte-india.org/sites/default/files/India%20Skill%20Report-2019.pdf>
30. Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563-575.
31. Learning that works (n.d.). Advance CTE. Retrieved from <https://careertech.org/resource-center>
32. Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social Cognitive career theory. In D. Brown & Associate (Eds.), *Career choice and development* (4th Ed., pp. 255-311). San Francisco, CA: Jossey-Bass.
33. Leong, F. T., Austin, J. T., Sekaran, U., & Komarraju, M. (1998). An evaluation of the cross-cultural validity of Holland's theory: Career choices by workers in India. *Journal of Vocational Behavior*, 52(3), 441-455. <https://doi.org/10.1006/jvbe.1997.1637>
34. Lofquist, L. H., & Dawis, R. V. (1984). Research on work adjustment and satisfaction: Implications for career counseling. In S.D. Brown and R.W.Lent (Eds), *Handbook of counseling psychology* (pp. 216-237). New York: Wiley.
35. Marsh, H. W., Hau, K., Balla, J. R., & Grayson, D. (1998). Is more ever too much? The number of indicators per factor in confirmatory factor analysis. *Multivariate Behavioral Research*, 33(2), 181-220.
36. Miller, B. (n.d.). 50 Positive Character Traits for the Workplace. Retrieved from <https://www.monster.ca/career-advice/article/50-personality-traits-for-the-workplace-canada>
37. My Next Move- Browse Careers by Industry (n.d.). Retrieved from <https://www.mynextmove.org/find/browse>
38. Nießen, D., Danner, D., Spengler, M., & Lechner, C. M. (2020). Big Five Personality Traits Predict Successful Transitions From School to Vocational Education and Training: A Large-Scale Study. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.01827>

39. Nye, C. D., Su, R., Rounds, J., & Drasgow, F. (2012). Vocational interests and performance: A quantitative summary of over 60 years of research. *Perspectives on Psychological Science, 7*(4), 384-403. <https://doi.org/10.1177/1745691612449021>
40. Obschonka, M., & Stuetzer, M. (2017). Integrating psychological approaches to entrepreneurship: The Entrepreneurial Personality System (EPS). *Small Business Economics, 49*, 203-231.
41. Paljug, K. (2018). The personality traits that will get you hired. Retrieved from <https://www.businessnewsdaily.com/7950-personality-traits-hired.html>
42. Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health, 30*(4), 459-467. <https://doi.org/10.1002/nur.20199>
43. Priyadharshini, S. K., Ganesh, L. S., & Kondaveeti, B. (2018). Personality, culture and career assessment. *Psychology and Developing Societies, 30*(2), 262-285. <https://doi.org/10.1177/0971333618792950>
44. Robinson, M. A. (2017). Using multi-item psychometric scales for research and practice in human resource management. *Human Resource Management, 57*(3), 739-750. <https://doi.org/10.1002/hrm.21852>
45. Rolstad, S., Adler, J., & Rydén, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health, 14*(8), 1101-1108. <https://doi.org/10.1016/j.jval.2011.06.003>
46. Soto, C. J., & John, O. P. (2019). Optimizing the length, width, and balance of a personality scale: How do internal characteristics affect external validity? *Psychological Assessment, 31*(4), 444-459. <https://doi.org/10.1037/pas0000586>
47. Srivastava, K. (2012). Concept of personality: Indian perspective. *Industrial Psychiatry Journal, 21*(2), 89-93. <https://doi.org/10.4103/0972-6748.119586>
48. Stoll, G., & Trautwein, U. (2017). Vocational interests as personality traits. In *Personality Development across the Lifespan* (pp. 401-417). <https://doi.org/10.1016/B978-0-12-804674-6.00025-9>
49. Strong Jr, E. K. (1943). Vocational interests of men and women. Stanford PB: Stanford University Press.
50. Super, D. E. (1957). Vocational adjustment in terms of role theory. *Vocational Guidance Quarterly, 5*(4), 139-141.
51. Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to career development.
52. Tilden, V. P., Nelson, C. A., & May, B. A. (1990). Use of qualitative methods to enhance content validity. *Nursing Research, 39*(3), 172-175.
53. Tyler, F. T. (1960). Teachers personalities and teaching competencies. *The School Review, 68*(4), 429-449.
54. Wille, B., Fruyt, F. D., & Feys, M. (2010). Vocational interests and Big Five traits as predictors of job instability. *Journal of Vocational Behavior, 76*(3), 547-558. <https://doi.org/10.1016/j.jvb.2010.01.007>
55. Wilmot, M. P., & Ones, D. S. (2019). A century of research on conscientiousness at work. *Proceedings of the National Academy of Sciences, 116*(46), 23004-23010. <https://doi.org/10.1073/pnas.1908430116>
56. Wilson, F. R., Pan, W., & Schumsky, D. A. (2012). Recalculation of the critical values for Lawshe's Content Validity Ratio. *Measurement and Evaluation in Counseling and Development, 45*(3), 197-210. <https://doi.org/10.1177/0748175612440286>
57. Wood, M. (2018). The personality of the workplace. Retrieved from <https://theundercoverrecruiter.com/personality-of-the-workplace>