

# DEVELOPMENT AND VALIDATION OF SARA TEACHERS PSYCHOLOGICAL COMPETENCE INVENTORY (STPCI): THE JIGAWA STATE EXPERIMENT

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## **Abstract**

*Recent developments in the Education sector and the invaluable assets that that educational qualifications have become in a very competitive Nigeria has motivated hitherto reluctant North-Western Nigeria to evolve innovative and expensive ways to booster enrolment, attendance, students academic performance and teacher productivity and effectiveness in all levels of learning. It is disheartening however, that the more investment government and parents made, the more stagnant teacher productivity and students performance becomes. It is in response to these mysteries, that Jigawa state, believing the problem is largely associated with teacher recruitment, deployment, inspection and monitoring evolves a draft teacher recruitment policy to stop arbitrary and nepotistic teacher recruitments and deployment. The draft policy however, relegates the most important aspect necessary for teacher effectiveness-the psychological competence. The objective of this paper therefore, is to develop and validate a new Teachers Psychological Competence Inventory which shall be administered concurrently with the usual aptitude test for prospective teachers in which the average scores for the two tests will be used as criteria for future teacher recruitment processes. The 80 item instrument covering eight psychological domains was validated using the Lawshe Validity ratio procedure taking into cognizance the table of values for CVR<sub>critical</sub> from exact binomial probabilities developed by Arye and Scally (2014). To establish the reliability of the instruments, the Cronbach alpha test of homogeneity was adopted, the instrument was administered to 390 prospective teachers, the alpha value calculated is found to be 0.856. The instrument was recommended as a*

**Keywords:** Psychological Competence Lawshe Validity Ratio CVR critical

With the establishment of the Teachers registration Council of Nigeria in 1993 and various initiatives push forward by state and federal government in enhancing the quality of teachers nationwide, 70 % of Nigerian teachers are qualified. Despite this development North-West zone takes the last position (6th) in 2005 and 2008 in West African Examination Council (WAEC) rating. They manage to keep the 5th positions in 2000, 2001, 2002, 2003, 2004, 2006, 2007 and 2009 and have a mean score of 31% and mean ranking of 5.2 for the ten years under study Utibe &Agwagah 2015). This prompted state to evolve measures for increasing teacher quality and productivity. Some states looking at the quality and quantity of their teachers and in a quest for more productive outcome embark of different strategies. Kano state for example, sponsored all unqualified teachers back to school to acquire related certification; Jigawa moved a substantial number of National Certificate in Education (NCE) holders to primary schools and many qualified graduates to senior secondary schools in addition to massive but very strict recruitment procedure. Kaduna state conducted a cognitive test and sacked all teachers that performed poorly and recruited a large number of qualified teachers.

Jigawa in particular introduced Teaching Inducement Allowance as such for over 15 years the state is leading in terms of teacher remuneration, a state university with full fledge faculty of Education and the recent conversion of Jigawa State College of Islamic Legal Studies to additional state owned College of Education were all measures aimed at increasing the number of qualified teachers in the state. With a total of 12,408 teachers for 648,147 students, the state's teacher-student ratio of 1:53 is the most closest to the National Policy on Education (NPE) and global Teacher Students Ratio (TSR) standard of 1:40 teacher-student ratio in Nigeria. From 2014 the State Universal Education Board alone is expending an average of 13,991,277,662 recurrent budget and expenditure for per annum. In 2018 alone the state expended a huge sum of 23,283,309,159, a total of 57.6% of the Composition of Personnel Cost Outturns and Performance on education sector alone as well as 13,273,417,228 spent on capital projects in Education sector which is 20.0% of 2018 Full Year Capital Expenditure Performance across Sectoral Programmes (JG ST Full year budget implementation Report, 2018). Other laudable initiatives by the state in the range of Teacher Volunteer Programme (a retraining programme for unqualified teachers) and the Female Teacher Development Skill Initiative are also geared toward improving of teacher quality, effectiveness and retention and importantly to radically revolutionized students academic achievement specifically in the various forms of Senior Secondary Certificate Examinations

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Despite all these initiatives, the problem of poor academic achievement has assumed a worrisome dimension on education system in Nigeria. Jigawa State has been in 33<sup>rd</sup> position out of 36 states in the federation, for three years consecutively in WAEC examinations. In 2015, the state was only able to get a meager 4.59% for an average of 18,437 students getting five O level credits and above including English and Mathematics. By 2018, total public primary school teachers stood at 12,983 and 7,115 have a minimum of NCE (qualified). The percentage of qualified teachers in public primary school is 55%. The total public Junior Secondary Schools (JSS) teachers stood at 4,559; where 3,723 of them are qualified. The percentage of qualified teachers in public JSS is 82%. The total public Senior Secondary Schools (SSS) teachers stood at 2,210 where 1,829 of them are qualified. The percentage of qualified teachers in public SSS is 83%. The report quickly adds that, However, possessing the formal qualifications may not be sufficient to ensure that a teacher is good. As if to buttress this assertion, disdainfully, the state was ranked 35<sup>th</sup> out of 36 state and Federal Capital Territory (FCT) in 2018 ranking of states by the WAEC.

In response to this negligible performance in national examinations which clearly showcase a clear inverse correlation between massive capital expenditure to education and teacher productivity as can be evidenced in the students various Senior Secondary School Examination (SSCE) results, the state co-sponsored several researches aimed at providing a way out of this vicious non-productive circle of increasing investment in the face of reduced productivity. One of the study reported by Doyle (2018) aimed at generating eight-year projections of the number of teachers required in primary and JSS outlines the likely supply of teachers to the school system and suggestions for improving teacher recruitment and deployment in Jigawa state submitted that

*“If the state is to meet Universal Basic Education (UBE) goals (universal enrolment and PTRs of 40:1 at primary level and 35:1 at JSS) by 2025, the number of primary teachers would have to triple, while almost four times as many JSS teachers would be needed compared to 2016. This would require the recruitment of around 7,000 teachers per year (4,700 primary and 2,300 JSS), and increasing overall annual enrolment in the Colleges of Education (CoEs) to roughly 16,400 students by 2022.”*

Alexandra Doyle (2018)

In response to the pitiable position of the state in respect to the standard, quality and quantity of education at various levels, consensus was reached as to swift and gradual measures to be taken to overcome certain disturbing scenarios. Among the measure are the development, standardization and legal enactment of a Teacher Recruitment Policy. The propose policy provides the following as the procedure to identify and recruit effective teacher:

- (i) Need assessment (at school level to find out teachers need and their corresponding area of need)

- (ii) Vacancy Announcement: The existing vacancies has to be advertise through appropriate media
- (iii) Application
- (iv) Aptitude Test
- (v) Interview
- (vi) Screening
- (vii) Issuance of appointment letter which must also contains job descriptions

### **Statement of the Problem**

The above statistical presentation of facts provide a disturbing scenario where huge financial expenditure is marched against dwindling academic achievement of students and stagnant, if not reduced teacher productivity in all job performance indices regardless of teachers' working experience and inducement allowances. More disturbing is the fact that Development of a policy document in the state that will guide and clearly spell out how teachers' recruitment and deployment will be conducted in the state subscribed by the state ignored an all important psychological facets to teacher quality and effectiveness

As enumerated above, the policy document provides for aptitude tests, these tests as provided during the last teacher recruitments in the state provide insights only as regards to the prospective teachers' academic qualification, mastery of subject matter and pedagogy; however, possessing the formal qualifications may not be sufficient to ensure that a teacher is good. It is also disheartening that even the indices for teacher effectiveness by some researchers like Education Data Research and Evaluation in Nigeria (EDOREN, 2018) such as registration with Teachers Registration Council of Nigeria (TRCN), possessing an education biased qualification such as NCE, Bachelor of Science Education (BSc, Ed), Bachelor of Art Education (B.A. Ed), Bachelor of Education (B.Ed) etc cannot adequately describe the effectiveness of teachers.

Teaching is a long term psycho-sociological business that goes several steps beyond paper qualification and made incursions into the personal psychological dispositions in terms of behavioural antecedents and projections of the teacher. In fact as rightly observed by Harris and Sass (2012) "*The ability to predict future performance is critical, especially when probationary employment periods are followed by decisions that provide long-term job security to employees (e.g., teacher tenure) that can affect organizational performance for years or decades*". This ability lies not only on cognitive dominated aptitude tests but that, all prospective teacher recruitment should make provision for psychological inventories that will make inroads into and significantly predicts behavioral patterns and future effectiveness of teachers. In doing this, there are other serious challenges of paucity of valid, reliable and usable single and overall psychological testing instrument which is culturally fair and can adequately assess various important domains of personal characteristics of prospective teachers. The study is a response to the these challenges as it provides a single, valid, reliable and culture fair

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psychological instrument to assess the domains of self-efficacy, attitudes, values, interest, resilience, psychological adjustment, moral reasoning and self regulation/monitoring. It is hope that the instrument will be adapted in the new drafted teacher recruitment policy and be administered side by side with the aptitude tests usually conducted by state and all other teacher recruitment agencies nationwide. It has to be noted that scores obtained from this instrument will have to be combined (added to) with the normal aptitude tests, calculated average scores and before decision is taken on the prospective teacher. This is in line with the submission of Anastassi and Urbina (2010) that “*more and more instruments provide opportunities for individual to study the detailed test results and relate them to occupational information and other data about personal characteristics and experience*”.

**Methodology**

The paper uses qualitative approach to gather data about current trends in education in Jigawa state, conducts brief literature review on the domains and how they relate to teacher effectiveness; the instrument is then introduced and subjected to both predictive validity and the LAWSHE validity ratio. Reliability was established using both Cronbach alpha and split half procedure.

**The domains**

Following domains are considered most important psychological constructs as per as teacher productivity and effectiveness is concern, thus they are hereby briefly discussed as they individually and collectively made up the **Sara Teachers Psychological Competence Inventory**

**Self-efficacy**

The history of self-efficacy begins with Bandura’s (1977) social learning theory that was renamed social cognitive theory in 1986. Bandura (1977) defines self-efficacy belief theory as “people’s judgments of their capabilities to organize and execute courses of action required for attaining designated types of performance”. According to theory and research of Bandura, (1995) self-efficacy makes a difference in how people feel, think, behave, and motivate them. In terms of feeling, a low sense of self-efficacy is associated with stress, depression, anxiety, and helplessness. Self-efficacy has been shown to be influential in the actions and success of individuals in many different areas, including overcoming fears, success in the workplace, hard life transitions, and academic performance (Chemers, Hu, & Garcia, 2001), Teachers’ beliefs in their abilities to instruct students and influence students’ performance are very strong indicators of instructional effectiveness (Bandura, 1997). One of the important beliefs considered to be significantly effective in students and teachers outcomes is teachers’ feelings of efficacy (Chacon, 2005). More specifically, teachers’ self efficacy is considered one of the most important factors in education that can be positively impact student academic

outcomes. It is these beliefs that determine “how well knowledge and skill are acquired” (Pajares, 2003,) in fact as noted by Wolters and Daugherty (2007) Research on teachers’ self-efficacy has increased in the past twenty years, and the construct is considered to be one of the key beliefs that influence teachers’ professional behaviors.

To buttress Pajeres submission, Jaafari, Karami, and Soleimani (2012) also noted that teachers’ self efficacy is one of the features affecting the success or failure of teachers. Skaalvik and Skaalvik (2008) pointed out that teacher self- efficacy refers to teachers’ ability to plan, organize, and carry out activities required to attain instructional goals. Therefore, teachers’ self-efficacy may influence a student’s success at school in several ways; teachers’ with high self-efficacy enhance student’s motivation, use classroom management approaches and adequate teaching method, and increase self-esteem that appear as a positive attitudes towards school (Al-Alwan & Mahasneh, 2014). Caprara, Barbaranelli, Stecaand Malone’s (2006) study indicated that teachers’ personal efficacy beliefs affected their job satisfaction and students’ academic achievement. Finally, research suggests teacher self-efficacy has important implications for overall school effectiveness. Not only do teachers with high self-efficacy appear be more prevalent in higher performing schools (Olivier, 2001, Bray-Clark & Bates, 2003). A teacher’s sense of efficacy may influence their emotive state, their goal setting and their persistence (Ashton and Webb, 1986). Several studies investigating teacher self-efficacy provides instrument inventorying the construct, Bandura teacher self–efficacy scale is a 30-question survey designed to provide an overall assessment of perceived self-efficacy levels regarding teaching and instruction was the pioneer among such instruments (Hoy, 2008). Unfortunately, reliability and validity information about the measure have not been available (Hoy, 2008). Other attempts to provide teacher self-efficacy were the multidimensional self-efficacy model of Skaalvik and Skaalvik (2007), known as Norwegian Teacher Self- Efficacy Scale (NTSES) as well as Teacher Efficacy Scale (Gusky and Passaro, 1994).

### **Resilience**

The concept of resilience in psychology refers to the positive adjustment that enables individuals to overcome adversity, Staudinger, Marsikeand Baltes (1993) view resilience as patterns of adaptation in face of biological, socioeconomic and psychological risks. The term “resilience” was first used by Holling (1973) to describe the ability of ecosystems to recover after a disaster. Since then it has been used in various contexts, particularly in the social sciences, to describe the adaptive capacities of individuals (White, Driver,& Warren,2008), communities (Magis,2010) and societies (Adger, 2000). Individuals’ability to cope with difficult life situations and successfully adapt to them are assumed to be able to avoid developing problematic behaviors in the future. Brunetti, (2006) described Teachers’ resilience as a quality that allows teachers to maintain their commitment at teaching. It is a series of specific strategies that teachers employ when they experience an adverse situation at school (Castro, Kelly, & Shih,

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2010, p. 263) and that Oswald, Johnson, & Howard, (2003) view resilience as the teacher's ability to successfully overcome personal vulnerabilities and environmental stressors.

Teachers' resilience refers to the extent to which teachers are capable to maintain positive attributes in face of a range of challenges, pressures and demands associated to their work. Wang and Gordon (1994) maintain that, the psychological literature on individual correlates of resilience shows that resilient students share certain characteristics, such as high levels of self-esteem, self-efficacy and motivation. Resilient teachers and students also prove to be more active and engaged with school activities (Finn & Rock, 1997). In a nutshell, teachers' resilience summarizes the extent to which teachers are capable in maintaining positive attributes in face of a range of challenges, pressures and demands associated to their work. Scholars have over the years developed instruments in testing resilience, some of these notable instruments include the two of the most widely used instruments internationally, The Connor-Davidson Resilience Scale (CDRisc) and Resilience Scale for Adults (RSA), The Connor-Davidson Resilience Scale (CDRisc) and Resilience Scale for Adults (Connor & Davidson, 2003, Friborg, Barlaug, Martinussen, Rosenvinge, & Hjermal, 2005)

**Moral Reasoning**

The Nigeria's philosophy of education as enumerated in the national policy on education was based among other things on "the development of individual into morally sound and effective citizen" Teachers are therefore requested by the national policy, parents and the community to not only produced students with impressive academic performance but also effective and morally sound students despite the influx of the myriad of moral and emotion regulation predators. Now more than ever before, teachers are challenged with ensuring quality of learning for students in the midst of inadequate instructional materials and motivation, highly stressed home, societal and school environment and regardless of the developmental stages of the students who are mostly in the period of storm and stress. It is these realities that are sometimes implicated in the continuous dwindling students' academic performance and achievement, partly due the assertion that unmotivated teachers and deeply stressed students may not be compatible bed fellows, and where the stresses of life become persistent, addiction to social media and internet becomes resistant, emotion regulation becomes weak, ultimately morality becomes questionable.

Teaching has been described as a moral enterprise (Goodlad, Soder & Sirotnik, 1990). Accordingly, teachers should be able to make sound moral judgments, look beyond their own self-interest and take a broad view of morality that considers the perspectives of all students who represent diverse racial, ethnic and cultural backgrounds. The moral teacher will recognize and respect the basic worth and dignity of all human beings (Cummings et al., 2001). Such a view of morality has been described

by Colby and Kohlberg (1987), whose theory of moral development assumes a relationship between cognitive development and moral reasoning.

The moral dimension of teaching Teachers who reason at the post-conventional or principled level are more likely than teachers who reason at lower levels to motivate students' learning and healthy social development, to have heightened awareness of their own moral and ethical responsibilities, and to take seriously their responsibility to emphasize the moral dimension of teaching (Cummings et al., 2001). Lubomudrov (1982) found a positive relation between moral development levels of teachers and their understanding of curriculum, teacher-student roles and management issues. The relationship between moral reasoning, autocratic teacher roles and democratic teacher roles was researched by Johnston and Lubomudrov (1987) in the elementary school setting. Teachers with DIT scores indicating highly developed patterns of reasoning about moral issues "had a more democratic view of teacher and student roles and saw rules as protecting individual students as well as the group's rights" These studies indicate that a relation-ship between complexity of moral reasoning and teachers' understanding of their duties does exist. Just how this finding fits into moral reasoning research can be clarified by Rest's four component model of moral reasoning/moral actions linkage. To re-emphasize the all-important nature of teacher moral reasoning, Beyer (1997) describes the consequences of failing to consider the moral aspects of teaching:

*"When teachers do not consider the moral dimensions of education, or the moral qualities of educative experience, other people and agencies including textbook publishers, individuals and organizations representing business and industry, politicians, and special interest groups have a relatively unobstructed hand in determining the moral perspectives communicated to students."* (p. 247)

In measuring moral reasoning, Moral Judgment Interview (MJI) (Colby et al., 1987), a standardized, individualized test, was the first and most widely-used measure of moral reasoning. Although a great deal of research has been conducted with the MJI, proper administration of the test requires a great deal of time both in training and administration. Consequently, the Defining Issues Test (DIT) (Rest, 1979) remained a more popular measure of moral reasoning. The DIT, a multiple-choice test, is based on moral stage typology initially defined by Kohlberg. As with the MJI, DIT items are based on hypothetical moral dilemmas, which Rest developed directly from Kohlbergian, in-depth interviews.

### **Psychological Adjustment**

The concept of adjustment originates from the Darwinian notion of adaptation that hypothesize that those species most fitted to adapt to the dangers of the physical world are most likely to survive (Diener & Seligman, 2002). However, an earlier more encompassing and satisfactory definition suggests that adjustment consists of the psychological processes by means of which the individual manages or copes with

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various demands or pressures of the environment (Lazarus, 1991). Adjustment is considered one of the basic concepts in mental health encompassing emotion regulation and emotional intelligence, since most of the behaviors of the individual whether successful or unsuccessful are just attempts at adjustment in order to reduce the tension suffered by the individual. Sound psychological adjustment paves way for the principle of self-control, self-regulation social moderation, flexibility and adaptability to the individuals in the community. Taha, (1993) define Psychological Adjustment as the primary criterion for achieving psychological and social normalness to the individual in the context of his/her relationship with the society. It includes reducing the tension aroused by the needs. Psychological adjustment involves Personal and Emotional Adjustment, Social Adjustment, Family Adjustment, and School Adjustment. Sufian (2004) defines it as the individual's satisfaction of his psychological needs, self-acceptance, enjoyment of tension-free life, free of conflicts and psychological disorders, enjoyment of intimate social relations, participation in social activities, and acceptance of the customs, traditions and values of society. . According to another viewpoint, rather than viewing adjustment as the attainment of a normatively-derived emotional state, it would be clearer to reserve the term to describe the processes of adaptation that occur over time as the individual manages, learns from and accommodates the multitude of changes which have been precipitated by changed circumstances in their lives. It is to view the view of this study that psychological adjustment can be better explained in the interaction between the situational dimension of personality theories with emphasis on Freud's psychoanalysis and its' fixation—situation consequences and Lazarus & Folkman, (1984) stress and coping theory.

Reynolds Adolescent Adjustment Screening Inventory (RAASI; Reynolds, 2001) is one of most widely instrument for measuring Psychological adjustment, The RAASI is a brief (32 item) self-report measure designed to evaluate critical factors related to adolescent adjustment and psychopathology. Reynolds (2001) identified items that measure both internalizing and externalizing problems across four subscales: Antisocial Behavior, Anger Control, Emotional Distress, and Positive Self. The RAASI is a self-report inventory for adolescents 12 to 19 years old. Items reflect thoughts, feelings, or actions are rated by the participant on a scale ranging from 0 (never or almost never) to 2 (nearly all the time). Balkin and Hernandez (2013) reported internal consistency reliability coefficients of the subscales for the normative group range from .81 to .88.

**Attitude and Values**

As defined by Allport (1935), “Attitude is a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence upon individual's response to all objects and situations with which it is related” Furthermore, Morris & Maistro, (2005) explained that attitudes are the individuals' prevailing tendency to respond favourably or unfavourably to an object, person or group of people,

institutions or events"). Attitudes like interests are learned through life experiences which make an individual's behave in characteristics towards persons, profession, objects, issues, situations, etc., to which they are related. Attitudes are very personal and complex in character. Attitudes are uniquely organized in each person and the organization itself is the product of his own reactions to his own experiences. Attitudes considerably influences one's behaviour, accordingly, the individuals, attitudes may be positive (favourable) or negative (unfavourable). As observed by Kreinter and Kinicki (2007), there are three components of attitudes –affective component (feeling or emotion), The affective domain includes the manner in which we deal with things emotionally such as feelings, interests, valuing, appreciation, motivations and attitudes (Bloom, 1976), cognitive component (beliefs or ideas), and psychomotor component (behaviour towards someone or something). These three components in most situations appear concomitantly to shape teacher's classroom posture, through direct and indirect interaction between society, school and teachers (Ahmad and Sahak, 2009). If a teacher's attitudes are negative, then, he will not be able to succeed in his profession.

In a relatively recent study, Banerjee, Srijita & Behera, (2014) revealed that the attitude of school teachers is neither more favourable nor unfavourable towards teaching profession that is, satisfactory or average in attitude towards Teaching profession. Another study by Sarkar & Behera (2016) revealed that the attitude of college teachers is also neither more favourable nor unfavourable towards teaching profession. This middle ground position prompted this study to place general attitude in three separate affective competencies of attitudes, interests and values. Some of the recently developed and validated instruments used to assess attitudes towards teaching profession include the Teacher Attitude Inventory (TAI) developed by Ahluwalia (2006). It is a 90 items Likert type scale, consisting of six sub-scales, of which, 56 items are positive and 34 negative. Again, 43 items are meant to assess the attitude in favourable direction and 47 unfavourable. The reliability of the inventory was 0.88. Another instrument meant to measure teacher attitude is Sarkar & Behera (2016) Attitude Scale, The tool was a five-point scale; that is to say, there were five scale points. Where 30 items and each of items have 5 alternative answers with a Cronbch alpha reliability of 0.89.

### **The Instrument: Sara Teachers Psychological Competence Inventory**

The instrument developed to assess the 8 psychological domain discuss had an initial 200 items with 20 items per domain, the instrument had likert type non-dichotomous options some of the response reversed during scoring procedure.

### **Validation**

The instrument named Sara Teachers Psychological Competence Inventory underwent content validity through Lawshe validity procedure using and improved CVR critical values developed by Ayre & Scally (2014). Ayre & Scally (2014) CVR critical values were first computed by Lawshe's colleague Lowell Schipper, where CVR critical is the

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lowest level of CVR such that the level of agreement exceeds that of chance for a given item, for a given alpha (Type I error probability, suggested to be .05 using a one-tailed test), An apparent anomaly was however observed by Wilson, Pan & Schumsky (2012) in the table of critical values between panel sizes of 8 and 9, where CVR<sub>critical</sub> unexpectedly rises to 0.78 from 0.75 before monotonically decreasing with increasing panel size up to the calculated maximum panel size of 40. It was suggested that instead of the one-tailed test reported, Schipper had, in fact, used a two-tailed test as this more closely resembled their results. Wilson, Pan & Schumsky (2012) therefore introduced new table of CVR<sub>critical</sub> values using the normal approximation to the binomial distribution.

As it may, concern was also raised about the second table introduced by Wilson, Pan & Schumsky (2012), In alignment with the submission of Gallin & Ognibene, (2007), Ayre and Scally (2014) raised concerns regarding the methods used by Wilson et al. (2012) to calculate the normal approximation, as it appeared a continuity correction had not been employed. In cases where the continuous normal distribution has been used to approximate the discrete binomial distribution more accurate results are obtained through use of a continuity correction. Based on the wide discrepancy between CVR<sub>critical</sub> reported by Wilson et al. (2012) and the one letter developed for Lawshe (1975) by Ayre & Scally (2014) produced a table of exact values for CVR<sub>critical</sub> including the minimum number of panel members required such that agreement is above that of chance, Ayre & Scally (2014) believed as that they are the first to produce a table of values for CVR<sub>critical</sub> from exact binomial probabilities. In contrast to previous work, all of the values for CVR<sub>critical</sub> are calculated based on an *achievable* CVR, given the discrete nature of the variables under investigation. In determining the content validity ratio of the instrument ten (10) panelists were used as follows:

Table 1: Content Validity of Sara Teachers Psychological Competence Inventory

SN	PANELIST	NUMBER
1	Professors of Educational Psychology	3
2	Professors of Tests and Measurement	2
3	Professors of Curriculum and Instruction	1
4	Directors from Jigawa State MoEST	1
5	Directors from Jigawa SUBEB	1
6	Experience Principals	2
<b>Total</b>		10

Each of the independent 'Panelists' responded to the following question for each of the items: Is the skill (or knowledge or construct) measured by this item

- Essential
  - Useful but not essential, or
  - Not necessary
- to the intended overall measure?

Responses from all panelists were pooled and the number indicating "essential" for each item is determined. Any item, performance on which is perceived to be "essential" by more than half of the panelists, has some degree of content validity. The more panelists (beyond 50%) who perceive the item as "essential," the greater the extent or degree of its content validity, based on the following formula advocated by Arye and Scally (2014), CVR was calculated for each item as the per CVR based on the normal approximation was calculated in the following way:

$$CVR = \frac{[Z\sqrt{\left(\frac{N}{20}\right)}] + .05}{(N/2)}$$

$$\text{Therefore CVR} = \frac{[\sqrt{Z\left(\frac{N}{20}\right)+1}]}{N}$$

Results were then based on CVR critical One-Tailed Test ( $\alpha = .05$ ) Based on Exact Binomial Probabilities as per table below:

Table 11: CVR critical One-Tailed Test

<b>Number of panelists</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Proportion Agreeing Essential</b>	1	1	1	0.875	0.889	0.90
<b>CVR critical</b>	1	1	1	0.750	0.778	0.80
<b>One sided p. value</b>	0.31	0.016	0.008	0.035	0.020	0.011

In the final selection only items selected by 9-10 panelists as essential were included in the final draft thereby discarding 109 items and replacing 11 items, the final items were therefore scaled to 80 items with 10 items per domain as established through the Content Validity Ratio originally developed by Lawshe (1975) and modified by Arye&Scally (2014) thus established strong CVR for the instrument.

### **Reliability**

As for the reliability coefficient of Sara Teachers Psychological Competence Inventory, Cronbach alpha reliability was employed, Cronbach's alpha is a measure used to assess the reliability or internal consistency of a set of scales or test items. According to Tavakol and Dennick (2011), Cronbach apha was developed by Lee Cronbach in 1951 to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct. Hence, it is connected to the inter-relatedness of the items within the test. In addition, reliability estimates show the amount of measurement error in a test. Put simply, this interpretation of reliability is the correlation of test with itself. Squaring this correlation and subtracting from 1.00 produces the index of measurement error. As the estimate of reliability increases, the fraction of a test score that is attributable to error will decrease. Cronbach's alpha is the most commonly used when you want to assess the internal consistency of a polytomous

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questionnaire (or survey) that is made up of multiple Likert-type scales and items. Thus, the alpha was calculated using SPSS and the result is as follows:

Table 3.: Reliability coefficient of Sara Teachers Psychological Competence Inventory

Cronbach's Alpha No. of Items	Cronbach's Alpha Based on Standardized Items	N
0.855 80	0.856	380

The Sara Teachers Psychological Competence Inventory was found to be highly reliable (80 items;  $\alpha = 0.86$ ), indicating a strong positive reliability coefficient of the Difficulties in Emotion Regulation Scale.

### **Conclusion**

The general motive behind this paper is to offer a professional diagnosis in to the mysterious nature of increased investment and reduced value and productivity in the education system of Nigeria with particular emphasis to Jigawa State, the psychological instrument developed was validated using content validity ratio and it reliability is ascertained using Cronbach alpha reliability index.

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