International Journal of Education, Learning and Development
Vol.6, No.7, pp.94-110, July 2018
Published by European Centre for Research Training and Development UK (www.eajournals.org)

CONSIDERING PRIMAL TEACHER LEADERSHIP THROUGH QUADRANT INTELLIGENT (QI) MODEL FOR TEACHER EDUCATION CONTENT VALIDITY IN GHANA

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ABSTRACT: *Using the convenient sampling technique, 250 teachers from the GES (N=218) were used to assess Qi levels. The findings showed significant differences in Ideal Qi and Actual Qi scores, but showed no significant variations among groups [F(1, 218)=1.517, p=.219]. The significant difference was found among the intercept of gender and teaching experiences [F(1, 75)= .596, p= .957)] therefore the alternative hypothesis rejected. Recommendations include the adoption of Qi model by the GES/ Teacher Education Division in Pre-service and In-service training of teachers. Teacher performance assessment should include the assessment of Qi levels and should lead to certification and partly based on evidence of such C21st multiple intelligence. Again, Qi model should be given serious consideration in policy decisions and scholarship. The study contributes to a new paradigm in skills set for teacher education and professional development. These skills set includes but not limited to social, emotional, strategic, and entrepreneurial intelligences.*

KEYWORDS: Emotional Intelligence, Entrepreneurship, Social Intelligence, Strategic Thinking, Quadrant Intelligence (QI) Model, Primal Teacher Leadership (PTL)

INTRODUCTION

Education is still philosophically framed on social relevance, knowledge creation, and preservation of values for a national development. Essentially, education is for the benefit of any democratic society wishing to develop its citizenry as a workforce. In this case the teacher is central to the creation of valuable human assets, societal values, and relevant skills in solving societal problems. The teacher is supposed to influence the set of awareness, knowledge, and skills needed for national human capital. In practice the teacher assumes leadership, well-endowed with knowledge creation, and should demonstrate skill sets to meet societal needs (Lieberman & Miller, 2004). The curricula in the teacher education institutions are supposed to be designed to develop teachers academically, socially, and technically for social relevance. Such institutions are to engage in pre-service training of teachers with intended outcomes on knowledge creation and skills building, transmission of a valuable sense of citizenry, and develop teachers to possess significant abilities that demonstrate a high sense of leadership in the classrooms, instructionally and pedagogically (National Teacher's Standard, 2014).

In this 21st century (C21st) there are some set of skills needed for socio-economic development as outlined by the Organization of Economic Cooperation and Development (OECD, 2015). These skill sets are globally significant for strategic workforce and human capital. The skill sets include people-oriented skills, technical skills, communication, critical thinking, creative thinking, innovations, and adaptability/versatility (see Fig. 1). The teacher is expected to raise standards based on (i) Professional values and attitudes, (ii) professional knowledge, and (iii) professional practice (National Teacher Standards, 2014). Hence, there is

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

this debate going on regarding teacher standardization in Ghana calling for a new paradigm thinking along the notion that teachers must be endowed with the task of shaping minds, both as pedagogical leaders and knowledge building capacity, and therefore to be certified as professionals. This may sound a 'high calling' for teachers who are supposed to teach and raise future generation with such OECD skill sets. Yet, the teacher should be endowed with such multiple intelligences in order to influence teaching and learning and to transfer such knowledge and skills.

According to Ghana's National Teachers' Standards (2014):

> *Teachers play such a critical role in inspiring and challenging students to achieve*
>
> *their potential that their preparation and subsequent development require the*
>
> *highest possible standards in knowledge, conduct and practice in their workplace. (p. 4)*

The significance of this study is the introduction of the Quadrant Intelligence (Qi) model for developing *Primal Teacher Leadership* (PTL). PTL is a concept of having an 'ideal' teacher' who is exemplary in thinking about learning tasks, resourcefulness, possessing a good relationship with his/her learners and others, and that teacher is in control of the socio-emotional well-beings of those under his/her command. Practically, the 'ideal' teacher is able to influence learners positively and is earmarked with Qi. Quadrant intelligence is a combination of the four key intelligences (figure 2): i.e., strategic intelligence, social intelligence, emotional intelligence, and entrepreneurial intelligence. These four intelligences are paralleled with the C21st skill sets (see figure 1 below; OECD, 2015) such that a well-endowed teacher (in this case, a PTL) is hereby an ideal teacher who is capable of demonstrating a high significant Qi (not just *IQ*, which is *Intelligence Quotient*). Qi is desirable and it will set teachers apart with professional high competencies.

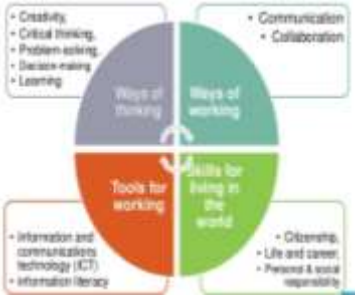

Fig. 1: The Four Categories of C21st Skills

Fig. 2: The Qi Model for PTL

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Stakeholders of education n Ghana are critical of the returns-on-investments, which is why the government of Ghana spends over 35% GDP on education. Additionally, there have been several educational reforms documents, especially to deal with the issue of failing public schools (National Education Strategic Plan for 2016-2030). However, there is yet more work to analyze critically on the kind of teacher influence on learning. Research is needed to compliment the teacher certification contents in Ghana (NTC, 2016). Many concern educationists are asking questions surrounding why schools are performing poorly in critical subject's area and yet there are professional teachers in those areas that had been trained to teach (Anamuah-Mensah Report, 2014).

Moreover, the issue is further complicated by the significant growth and policies that challenge the entire education system. The Ghana National Education Strategic Plan for 2016–2030 was launched in July 2016, and it was clear that Ghana would have 11 million students actively in schools (at a population growth rate of 2.1%). Thus, an additional 3.3 million students in 15 years is expected (National Action Plan-ESP, 2016). Ghana will need more highly skilled, highly intelligent teachers, to develop the populace with high intelligent skills, and possibly to achieve *Education for All* as agreed in the Sustainable Development Goad (SDG) objectives. It has been argued that Ghana's national education policy should be guided by the kind of workforce for the growing population, the teachers we want to achieve standards (T-TEL Programme, nd), and the teacher development for our human capital. The present government wants basic education to focus on the 4-Rs: **R**eading, w**R**iting, a**R**ithmetic, and **R**ecreational goals. These are all geared towards high-level intelligence. But the question is: are our teachers endowed with such intelligences (Qi) that resonates strategic, social, emotional, and entrepreneurial intelligences?

Purpose, Research Questions and Hypotheses

The purpose of this study is to introduce the concept of Qi among teachers as a consideration in policy for teacher education, teacher professional development with regards to *Primal Teacher Leadership* (PTL). The specific objectives are to: (i) ascertain the *Ideal* and *Actual* self-reporting levels of intelligences as a way to assess respondents' Qi levels and PTL potentials; (ii) highlight differences in demographics in Qi levels; and (iii) recommend for policy consideration a framework for Qi content development in teacher education and leadership.

The main research questions guiding this study are:

(ı) to what extent does the *Ideal* Qi scores compare with the *Actual* self-reporting Qi scores of respondents show their PTL potentials?

(ıı) what are the differences in demographics with regard to the Qi levels raised in the following three hypotheses?

H_0: Respondents (the teachers) do not possess the levels of Qi to warrant PTL

Ha1: There is a significant difference among gender groups when it comes to Qi levels.

Ha2: There is a significance difference among the different experience levels of

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teachers when it comes to demonstrating Qi levels in primal teacher leadership.

These hypotheses are formulated based on the assumption that

$$\mathbf{Qi} = \sum (\mathbf{EI_1}+\mathbf{EI_2}+\mathbf{SI_1}+\mathbf{SI_2})$$

Where: **Qi** = Quadrant Intelligence,

EI_1 = Emotional Intelligence (*Emo-Intel*) **SI_1**- Strategic Intelligence (*Strat-Intel*)

EI_2 = Entrepreneurial Intelligence (*Entre-Intel*) **SI_2** = Social Intelligence (*Soc-Intel*).

(iii) what recommendations can be tabled for consideration as a policy framework for evidence-based teacher education content review in order to develop PTL.

So to develop Primal Teacher Leadership, conceptually, one has to combine the aggregate of all the quadrant intelligences.

Philosophy of the Teaching Profession

First of all, there are different philosophies that underpin educational endeavours. (Aggarwal, 2002) exposes that there are four different interpretations of education depending on who is defining it. Education helps understand (i) the complex nature of human personality, (ii) nature of environment, (iii) philosophies of life, and (iv) educational theories and practices. The common belief is that education is for human development: the *Mind*, the *Ethics* and *Values*, and the *Human capital*. Philosophically, education is for *the mind development* and *value creation*. Mind philosophers such as Vygotsky (1978) and Heil (2004) agree that there is bound to be a causality in social values when falsehood is transmitted into people's minds. Therefore whoever is given that responsibility in the society to develop *'Minds'* ought to engage in his/her professional task through ultimate responsiveness and the ethics of care as an educators or teachers.

Secondly, ethical philosophers also see education as for *ethics and socio-moral development*. The Kantarian philosophy lined up education for *Critique* based on pure reasoning, where "we learn in education that a person has good moral character if '[he] keeps steadfast to his purpose'" (Thayer-Bacon & Bacon, 2008, p. 105). Educators place premium on ethical and socio-moral standards through "the pedagogical antimony", that teaching should be with the *right skills* and *right intelligences*. Those who teach should not lack values and socio-moral contents validation; teaching should not be undertaken by a less-endowed, non-intelligent people. Like the Medical Surgeon, numerous studies show that mind and human development should be done by 'professionals' who can teach C21st skills (www.techforC21stTeachers, 2016). Otherwise these unprofessional teachers must be classified as 'endangering species', likely to fail learners, and are harmful to the mind development process of the nation.

In Ghana, the National Teacher Council (NTC) has drafted a comprehensive document of Pre-Tertiary Professional Development and Management (PTPDM) policy framework guideline for the Ghana Education Service (GES). The policy document (NTC-PTPDM, 2017) gives its general philosophy as in three dimensions, and includes teacher competencies: (i) Professional values and attitudes, (ii) Professional knowledge, and (iii) Professional practice(s). "The competence of 'Professional knowledge' means that: 'Teachers possess

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professional knowledge' …. The competence of 'Professional practice' means that: Teachers apply professional knowledge in their job delivery effectively'" (PTPDM-NTC, 2017). The draft document fell short of details on competencies that are global and C21st skill sets such as Strategic thinking, social intelligence, emotional intelligence, and entrepreneurial intelligence, and more importantly, how to acquire these Qi.

Strategic Intelligence/Thinking

Strategic intelligence (*Strat-Intel*) is the kind of intelligence that is exhibited in thinking and planning for a prospective ventures or adventure (Strangham, 2010). This kind of intelligence involves seeking information, analyzing, and framing ways to use the known information. It is expostulated on communicating contingency systems in human capacity. Human resource experts strongly suggest strategic intelligence in getting the best from people, developing people, and maximizing resources for effective outcomes (Greer, 2001; Larson & Hansen, 2005, p. 12). According to Graetz (2010), *Strat-Intel* among teachers will be the ability to forecast the results of an endeavour with the preparedness to influence performance in teaching and learning. *Strat-Intel* becomes an important framework for forecasting results through "a pattern in a stream of actions". This is different from strategic planning, strategic implementation that resonate administration and management but it is the kind of thinking and planning that are complementary in strategies for anticipated evidence on a pre-set of indicators such as pre-knowledge or learning objectives. It is that kind which comes from 'Brain Power' (2014).

Sternburg (1981) writes, "many psychologists now regard intelligence as a set of information-processing abilities that can be diagnosed and taught" (p. 18) and this has an implication for teachers. Strategic intelligent involves teachers' ability to synthetize, brew divergent ideas, have a creative mindset, and it encourages innovations. Such an intelligent teacher will foster new ways of thinking about problems, solutions, and methods. He/she shows leadership in fostering strategies, planning and forecasting (UK National Teacher report, 2015). According to UK report, most teachers (in England and Wales) are lacking considerable skills in 'thinking' as it is reflected on their over-dependency on authorities to provide every resource for instructional purposes. Similarly, a T-Tel report in Ghana shows the need for strategic thinking skills among trained teachers in Ghana (T-Tel report, 2015, p. 11).

Social Intelligence

Social intelligence (Soc-Intel) is defined as the ability of a person to relate and react intelligently in a given social environment. Soc-Intel connotes awareness, knowledge, and skills of knowing, appreciating, and valuing 'others' in a diverse social setting (2015a). This kind of intelligence is reflected in four areas: (i) information processing, (ii) social skills, (iii) social contextual awareness, and (iv) interpersonal relations (Quarto et al., 2016; Yeh, 2013). Soc-Intel is a set of skills needed in living life 'in the real world' and for the C21st workplace. Soc-Intel "refers to the skills and facilitators that determine how effectively we understand and express ourselves, understand others and the social context, to help interact with other people and cope with daily demands" (Yeh, 2013, p. 528). (2015a) describes such intelligence as having developed 'otherness' in a responsible, respectful, and relational manner leading to the socio-moral "preference for others". Professionally, teachers, just like most business leaders, are expected to relate with 'others' in a more acceptable, respectable, dignified, and professional manner (2015a). In a reasonable way, teachers belong to a professional group, in this case as professional citizenship, which demands critical

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professionalism and adherence to a code of conduct. This social intelligence is demonstrated in communication, collaboration, and professionalism. In other words, part of the global soft skills or people skills needed in modern communities.

Emotional Intelligence

Emotional intelligence (Emo-Intel or EI), is a concept that defines the ability of a person to relate with others by appealing to and exercising the control of emotions (Goleman, 2002). Emo-Intel is knowing and communicating feelings that have a good sense of control over moods or emotions (Chopra & Kanji, 2001). Chopra and Kanji define this kind of intelligence as the complex processes of 'knowing, feeling, thinking, and acting' on emotions. The authors summed up the process as of "…'feeling about thinking' and 'thinking about feeling'" (p. 5). Hence in any given social environment such an intelligence is able to manage and match emotions, attitudes, accommodation, and sensitivity to the feelings of others. Emo-Intel in teachers will predict an expected behaviour in moods and feelings, empathy and sympathy, collaboration and cooperation, and negotiation and resolution. According to Chopra and Kanji (2001), it is the optimization of self-motivation and socialization. The power of such intelligence is fully recognized in most leadership texts, but least mentioned clearly in teacher leadership development text. However, according to the National College for School Leadership, UK report (NCSL-UK, 2010), managing emotions and human relations is very important in the ecology of a school for teaching and learning. NCSL-UK report proposes seven (7) strong claims in a successful school leadership that include "a small handful of personality traits … of the ability to control of emotions, and a check of overly reactions to personality crushes" (p. 444). These qualities are acknowledged as emotional realities or intelligence in any social context, and it is true of the 'preferences for others' in times of conflict and misunderstanding. Emo-Intel has the ability to serve as a catalyst for collaboration, synergy, communication and social networking.

Entrepreneurial Intelligence

The power of innovations is significant in times of demands, scarcity, and choice. Contemporary school system is faced with 'demands, constraints, and choices', according to Sergiovanni, Kelleher, McCarthy, and Wirt (2004). This calls for entrepreneurship – the art of providing solutions – being resourceful and innovative (Barringer & Ireland, 2010; Edoho, 2015). Edoho (2015) mentions that it is important for African social development. *Entre-Intel* is the skillful ability of an individual to find a seed, an idea, and nurture such as idea in such a way to provide solutions (Baumol, 2006; Murphy Jnr., 2010). Murphy Jnr. explains that the intelligent entrepreneur always have the ability to solve existing problems, provide innovative solutions out of scarcity and choice. It is usually done through ten (10) basic rules, which include *commitment*, a *search for solutions*, *creative thinking*, *acting with others*, *learning to lead*, *selling ideas (marketing)*, *perseverance*, and *a passion to 'play the game for life'*. *Entre-Intel* is a life-long adventure to seek social solutions. In this regard Baumol (2006) advises that entrepreneurial can be productive, unproductive and sometimes destructive because of the tendencies to amass wealth and exploit the needy and vulnerable.

According to Sharma and Chrisman (1999), the essence of this kind of intelligence is the aspect of making meaningful living and a good returns-on-investment. Otherwise it is short of entrepreneurship if there is no gain; it becomes a hobby. *Entre-Intel* should result in selling ideas, transmitting innovations, and solving problems for intended profit (Barringer & Irelands, 2010). Entrepreneurship applies the same repertoire of influencing people, turning

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ideas into fruition; and giving services and products in a competitive venture (Appiah-Adu & Aning, 2012). Literature refers to *'innovations for solutions'* as overlapping 'thinking' and 'doing' that encapsulates emergence of lead in a competition. Most *Entre-intel* people change theory to practice – albeit, they drive organizations (Sharma, 2010, p. 12).

Research Design and Sampling Technique

This study applies the descriptive survey design to describe the existing levels of multi-intelligences of respondents, in this case, teachers. The intent is to draw comparison from reviews of similar business models to help develop a framework for *PTL* based on Qi model (see fig. 2). The design is appropriated to describe the *ex post-facto* skills as per self-reported from the respondents (Fraenkel & Wallen, 2006), and of which the evidence may support the assumption of quality teacher leadership existing among respondents.

Participants of 250 were conveniently sampled during a sandwich semester (June–August). They were graduate students pursuing various studies in teacher training institutions (i.e., Colleges of Education and Universities), which are mandated to train teachers for the Ghana Education Service (GES). Most of the participants are practicing teachers from various regions of Ghana with different demographics who volunteered to participate after the researchers explained the purpose of the study. A survey questionnaire was administered at a classroom setting.

Instrument, Data Collection, and Analysis

The survey questionnaire was researchers-designed based on reviews of the various concepts and divided into two sessions: (i) biographic information and (ii) the different intelligences items. One of the item in section one is for respondents to rate their *Ideal* knowledge on a 10-point scale (zero to nine). Respondents were to self-rate their levels of knowledge of the various intelligences (from 0 to 9, where zero=none and 9=the highest). The second session had 53-items that capture the four intelligences which constitute the Qi (see figure 2).

The items were first peer-reviewed, then simplified, and given a face-value content validity. (The exploratory nature of the study is purposeful as part of the development to later test empirically on a larger scale).

Data was collected at sites (three campuses) and analyzed on the Qi constructs to establish the central tendencies reporting frequencies, percentages, standard deviations, as well as the Means. Thus, the Means of Means for the four variables were calculated from the 53-items on the basis of 6-point (0 to 5), where zero is computed as one (1) at the data entry point. Also, there was only one reverse scoring item (precisely the ***Soc-Intel*** item #3 which reads: *I set standards of performance for group members to follow*) and in this case, where 1 is reversed as 6 at data entry point. This was intentional to test the dependability of the respondent's choices and comprehension. Finally, data is reported as *ex post facto* analyses of multi-variances and descriptive statistics for demographic differences. Whilst the independent t-test was conducted for gender categories and ANOVA for educational qualifications (multiple variances) to ascertain their statistical significance at p=0.05.

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

DISCUSSION

Demographics

In all, we had 220 participants responding (88.0%) with 218 usable data for the statistical analysis. Table 1 shows we have more male respondents (62.3%) and the respondents are mainly from the Ghana Education Services (GES).

Table 1: Demographic of Respondents (N=220)

Items	Categories	*F*	%
Gender	Male	137	62.3
	Female	83	37.7
Age	< 21 years	28	12.7
	21-30	137	62.3
	31-40	50	22.7
	41-50	5	2.3
Positions	Student-Teachers	164	74.9
	College Tutors	39	17.8
	Heads/Directors	6	2.7
	Admin/Others	10	4.6
Education	Post-Graduate	10	4.6
	Bachelors	64	29.2
	Diploma	140	63.9
	WASSCE/Others	5	2.3
Experiences	1-5	77	35.0
	6-10	101	45.9
	11-15	34	15.5
	16-20	7	3.1
	21 and above	1	0.5

Source: Fieldwork, 2016

Majority (62.3%) are between 21 and 30 years old. These are young adults who are studying further to move up in their teaching career and rise into leadership positions. Most of these respondents (63.6%) have the basic qualification (Diploma in Basic Education) from recognized teacher education institutions. There were only five (2.3%) pre-service student teachers, who are 'learning to teach' and for that matter possessed other certificates. Otherwise most are student-teachers (74.9%) who are in active service as classroom teachers. From the Table 1, majority (45.9%) of the respondents are experienced teachers (having served between six to 10 years). Only a few (2.7%) reported holding GES directorship or school leadership positions.

Research Questions and Hypotheses

To answer the research question one: How do the *Ideal* Qi scores compare with the *Actual* self-reporting Qi scores of respondents to show their PTL potentials?

Here respondents were asked to rate their own self-knowledge (ideally) regarding the various intelligences. This is to assess data on Ideal knowledge as reported. Table 2 indicates their

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self-reporting ideal knowledge levels based on the scale zero (0) to nine (9), where zero mean no knowledge level at all.

Table 2: Respondents' Ideal Self-Rating of Study Variables (N=220)

Variable	*0 (%)*	*1 (%)*	*2 (%)*	*3 (%)*	*4 (%)*	*5 (%)*	*6 (%)*	*7 (%)*	*8 (%)*	*9 (%)*
Soc-Intel	0.0	0.0	0.0	1.4	2.7	16.0	13.7	18.7	**32.0***	15.5
Emo-Intel	1.3	0.0	0.0	0.9	1.8	11.4	16.9	**24.8***	24.7	18.3
Strat-Intel	1.4	0.0	0.0	0.9	0.9	5.9	16.0	29.2	**32.0***	13.7
Entre-Intel	0.9	0.0	1.8	2.3	9.1	18.3	15.5	17.4	15.1	**19.6***
Qi*	0.9	0.0	0.45	1.38	3.63	12.6	15.53	22.50	**26.0***	16.8

Source: Fieldwork (2016) *Key: **Bold*** was the highest percentages self-rating 'Ideals'*

Table 2 shows respondents consider their 'ideal' knowledge levels of the various intelligence as high. For example, majority (32.0%) rated their *Soc-Intel* significantly high at 9/10; *Emo-Intel* the majority (24.7 %) rated themselves high at 7/10; *Strat-Intel* was also significantly high at 9/10 (32.0%), and that of *Entre-Intel* majority (19.8%) was similarly high at 10/10. On the aggregate the Qi level summed up to be significantly high where 26.0% of respondents scored themselves an average of 9/10 and with interesting variations. This translates to a high confidence level when it comes to knowledge of such intelligence and for that matter Qi.

Table 3: Ideal Qi Levels vs. Actual Qi levels of the Various Study Variables (N=220)

	Min Statistic	Max Statistic	Mean Statistic	Std. Error	Statistic
SocIntel-Actual	1.87	7.93	**3.71**	**.046**	.68
Soc-Intel-Ideal	3.00	9.00	7.04	.10	1.48
Emo-Intel-Actual	1.86	7.36	**4.12**	**.06**	.82
Emo-Intel-Ideal	00	9.00	7.03	.11	1.61
Strat-Intel-Actual	1.75	5.92	**4.32**	**.05**	.76
Strat-Intel-Ideal	.00	9.00	7.16	.10	1.46
Entre-Intel-Actual	1.67	6.00	**4.52**	**.06**	.85
Entre-Intel-Ideal	.00	9.00	6.50	.13	1.92
Actual-Qi	1.84	5.83	**4.17**	.04	.64
Ideal-Qi	1.75	9.00	**6.93**	.08	1.21

*Source: Fieldwork (2016) * Mean of the Qi is computed with the four variables*

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However, comparing the *Actual* Qi scores with the *Ideal* Qi scores, Table 3 shows respondents' self-reporting data from the 53 questionnaire items which determine their 'actual' scores. First, there are differences in Mean scores for all the four intelligences and for the Qi scores there is a significant difference between the *Ideal* Qi (Mean=6.73, SD=1.21) and *Actual* (Mean=4.17, SD=.64). Second, Table 3 shows that the self-acknowledge is significantly different from the actual practices in all the four intelligences. It also shows that there is baseline knowledge of the Qi and actually there is the need for PTL creation to compliment C21st skill sets (T-Tel Report, 2015). It is important however to note that these are self-reporting and may be challenged by data integrity.

Regarding the first null hypothesis (Ho): Respondents do not possess the Actual levels of Qi to warrant the PTL status. Data scores are segregated from Table 3 shows only the *Actual* means.

Table 4: Segregated Actual Means Scores (N=220)

	Min Statistic	Max Statistic	Mean Statistic	Std. Error	
SocIntel-Actual	1.87	7.93	**3.71**	**.05**	.68
Emo-Intel-Actual	1.86	7.36	**4.12**	**.06**	.82
Strat-Intel-Actual	1.75	5.92	**4.32**	**.05**	.76
Entre-Intel-Actual	1.67	6.00	**4.52**	**.06**	.85
Actual-Qi	1.84	5.83	**4.17**	.04	.64

Source: Fieldwork (2016)

Table 4 reveals respondents *Actual* Qi are significantly high (Mean=4.17, sd=.64, std error = .04) and thereby the null hypothesis can be rejected because there is a significant amount of Qi among the teachers (respondents) to warrant PTL development among them. The standard deviation (sd=.64) also shows not much variation from the mean scores to warrant a point of reflection at 68.0% (Pyrczak, 2004).

With the second alternative hypothesis, H1: *There is a significant difference among gender when it comes to Qi levels among the teacher respondents.* A follow-up research question would be: Are there significant differences for Qi Mean scores between gender groups? Tables 5 to 7 answer that.

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

Table 5: Two-Way ANOVA for Gender Group Differences in the Qi (N=218)

		Sum of Squares	df	Mean Square	F	Sig.
Soc-Intel	Between Groups	36.03	1	36.05	348	.556
	Within Groups	22485.957	217	103.22		
	Total	22521.982	218			
Emo-Intel	Between Groups	3.079	1	3.079	.02	.878
	Within Groups	28178.33	217	129.85		
	Total	28181.41	218			
Strat-Intel	Between Groups	178.68	1	178.68	.23	.137
	Within Groups	17369.03	217	80.04		
	Total	17547.71	218			
Entre-Intel	Between Groups	391.46	1	391.46	3.89	.050*
	Within Groups	21817.54	217	100.54		
	Total	22209.00	218			
Qi	Between Groups	1673.57	1	1673.57	1.52	.219
	Within Groups	239426.99	217	1103.35		
	Total	241100.557	218			

Table 5 shows main effect results revealed that gender was not a significant difference factor in determining Qi among the teachers (respondents), $F(1, 218)=1.52$, p=.219. Only there was a margin of significance when it comes to *Entre-Intel, F*(1, 217)=3.89, p=.050. Further analysis as in Levene's test of equality of variance as indicated in Table 6 shows a significance (p=.000), which means that the error variance of the dependent variable is equal across groups (non-homogeneity).

Table 6: Levene's Test of Equality of Error Variances*

Dependent Variable: Years of Teaching

F	df 1	df 2	sig
2.31	144	75	.000

Dependent Variable: Years of Teaching

Table 7: Univariate ANOVA Tests of Between-Subjects Effects

Source		Sum of Squares	df	Mean Square	F	Sig.
Intercept	Hypothesis	547.50	1	547.50	816.31	.000
	Error	98.71	147.18	.671		
Gender	Hypothesis	.854	1	.854	2.002	.164
	Error	19.96	46.772	.427		
Qi	Hypothesis	72.26	106	.682	1.688	.038
	Error	14.36	35.575	.404		
Gender * Qi	Hypothesis	15.06	37	.407	.596	.957
	Error	51.18	75	.682		

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

Where teaching experience (i.e., the number of years in active service) was held as dependent variable, Table 7 reveals that the factor of gender interaction in Qi is not significant, F(1, 75)=.596, p=.957 and therefore the alternative hypothesis is rejected. This presupposes that gender does not necessarily determine Qi levels among respondents. What this means is that whether male or female is insignificant when it comes to quadrant intelligence level for teaching.

CONCLUSION

The findings of the study established the levels of knowledge related to the Qi as a model for teacher development. The intent was to suggest the use of Qi model as a baseline in developing skills set for *PTL* among teachers in the Ghana Education Service. The data from this sample of teachers show that majority of the respondents acknowledged skills in all the four intelligences (*Ideal*) that culminates a significant Mean of Means for Qi (Mean=6.93, sd=.64). Respondents' self-awareness and knowledge may not necessarily translate into *Primal Teacher Leadership* competency. Therefore it was compared to the *Actual* Qi mean scores. Here the evidence showed significant difference between the self-reporting *Ideals* and *Actual* Qi scores. But as teachers, GES may enhance the knowledge expressed about PTL competencies by looking at the teachers' baseline data for all the Qi intelligences for developing the C12st skill sets advocated by OEDC (2015).

The study's hypotheses showed that teachers do possess a significant amount of Qi that can help develop potential teacher leadership in our classrooms. However, these qualities are not intercepted by gender differences or dependent variable such as teaching experiences. It is imperative that qualified teachers should possess the right level of awareness, knowledge, and skills of knowing, appreciating, and valuing 'others' in a pluralistic, diverse social setting (2015a; Quarto et al., 2016). Yet the focus of Ghana's teacher education contents is not emphasizing much of social skills and human relations as par socio-emotional intelligence.

Secondly, the Qi model is meant to reflect the ability to process information in a social context, support problem solving in an entrepreneurial way, and create a healthy interpersonal relationship (Quarto et al., 2016; Yeh, 2013). The C21st teacher must be versatile and creative to outweigh the new generation of learners. According to the study results, teachers are confident of all the intelligences (*Ideal* mean scores of M=6.93, sd=1.21), but their Actual Qi *intelligence* scores was significantly lower (Actual mean scores of M=4.17, sd=.64). This demonstrates a self-awareness mindset that precipitates but different from their actual self-reporting the ability to control emotions, create conducive atmosphere for teaching and learning, and build good processing capacity and so forth. These mind philosophy is good for 'knowing, feeling, thinking, and acting' on emotions – a "'feeling about thinking' and 'thinking about feeling'" (Chopra & Kanji, 2001, p. 5). Yet, GES has to harness the difference between 'thinking' and 'practice' when it comes to the Qi model for teacher effectiveness.

Furthermore, Emo-Intel is equally important in raising PTL. The respondents claimed to have the basic knowledge to managing their emotions, attitudes, standards of accommodation, and sensitivity to the feelings of others. In a school environment this can help predict an expected behaviour in moods and feelings; it can foster collaboration and cooperation, negotiation and resolution, and optimization of self-motivation and socialization (Chopra & Kanji, 2001). On

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

the other hand, Strategic intelligence was found to be moderate (Mean = 51.96, sd=8.97) and that of Entrepreneurial Intelligence (Mean=54.34, sd=10.09). These two intelligences go hand in hand and may need the attention of GES/Teacher Education Division for the purpose of developing higher standard of PTL and the professional teacher certification. Teachers have to focus on strategies in problem solving and resourcefulness.

Presupposing that the main assumption underpinning PTL is that teachers are able to strategize, innovate, and think of new way to create knowledge across different learners. Strategic intelligence is about thinking and planning processes for prospective adventure (Appiah-Adu & Aning, 2012; Strangham, 2010); whilst entrepreneurial skills is about being resourceful for solving social problems (Murphy Jr, 2010); and both are crucial for futuristic, visionary mindset, and inspirational teacher leadership that focus on achievable results.

It is quite conclusive therefore that in GES teacher development agenda may capitalize on the taciturn self-confidence levels, self-awareness ratings, and then develop training materials to raise primal leaders. The new paradigm thinking should be based creative problem solving – entrepreneurial skills. GES's In Service Training (INSET) has to be comprehensively jeered towards developing such Qi as in social, emotional, strategic, and entrepreneurial intelligences. Also, at the pre-service teacher education level, the colleges and universities may have to re-visit the Qi development concept. Those teachers sampled showed potentials to raise Qi levels. Their leadership potential must focus on the benefit to the social clienteles including students and social circles.

RECOMMENDATIONS

The following recommendations are suggested as the way forward. First, broadly it is important for curriculum re-design based on institutions re-engineering practical teacher development that establishes a pathway for developing innovation thinking, Qi model in our teacher education content. Secondly, there has to be a policy leadership to establish a framework for modernization of teacher education contents (T-Tel Report, 2015), and thirdly, stakeholders must be concerned about the kind of C21st skills set that our teachers possess, which must support professionalism and acknowledgment.

It is also recommended that pre-service teacher education and GES' INSET should aim at incorporating contents that lead to PTL as a priority to generate Qi. It should be pedagogical sound and contextual abilities to demonstrate high intelligences leading to *Leadership for Learning* (GES-TED, 2010). GES should incorporate INSET materials along these four intelligence areas (Qi model) for performance in a social as a social entity. Those mandated to train human intelligence (mind philosophies) are to be endowed and tested to possess them also.

Furthermore, the current policy framework in Teacher Certification should consider assessing teachers' Qi levels to help placements and the avoidance of failing schools. There should be a *"Zero-to-Zero"* in school performance that should ensure that teachers possess certain levels of cumulated Qi (not just iQ) to match social/ relational needs. Learning takes place in a social context and that context must be managed by PTL. Those teachers in less-endowed schools may have to be assessed on their Qi levels to avoid blaming students for failing to achieve. Teachers must be accountable.

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

Next, for the sake of generations of workforce, it is equally important to have equal opportunity and bridge discrimination in high Qi levels among teachers. Therefore the Ministry of Education and GES should use Qi assessment tool in placement for equal access to quality education. Most policies on access are based on the framework of exclusivity, yet policy makers should not forget quality teachers' availability and create incentives to lure high Qi teachers to non performing schools in order to bring about equity to quality content delivery. Qi model assessment tool should be developed and tried to ensure quality teachers are certified are dispatched to places that will ensure equity. Teachers shape minds; that task should not be experimented in civilized society.

Finally, teachers should be endowed with all the Qi at both pre-service and in-service training. Educational authorities, in this case GES should recalibrate their teacher Education operations to facilitate new skill sets based on Qi model. GES monitoring and evaluation should have space for Qi assessment and content appraisal. GES should give priority to those who possess such C21st skill sets to raise the future workforce in Ghana. The underpinning philosophy of this study is that *teacher excellence is expected* and special competencies, qualities and characteristics termed *"Quadrant Intelligence (Qi)"* – multi-facetted intelligence – should be the way forward.

Policy Implications

Without this paradigmic shift in thinking teacher development may be skewed towards pedagogical skills, technical know-hows, and that minimalize soft skills. However, research has it that *Leadership in Learning*, teacher leadership, and headship supervision are crucial in determining teaching and learning outcomes. The implication in policy reforms is that Qi model may become just one of academic talks; yet, these C21st skill sets are evident-based and it needs policy makers' attention. Especially in developing countries teachers are coming out with very little skills in synthetizing, how to brew divergent ideas, arouse creative mindset, and how to encourage innovations in children.

If Ghana education agenda 2030 is to meet expectations the policy implication of divergence in teacher leadership is high. Teachers must not exhibit significant deficit in Qi, otherwise any anomaly should be dealt with at INSET. Such intelligences are practical skills that future children ought to be endowed with by Qi teachers. There is bound to be causalities if 'mind changing' surgery is left in the hands of less capable professionals. The policy on teacher professionalism and certification should consider no casualties or deficits in Qi not necessary iQ only. According to Graetz (2000), the ability to think strategically will lead to planning, management, and "synergistic tension that reconciles creativity with rationalism and pragmatism" (p. 10).

GES needs a bold policy leadership to raise teachers' Qi levels to translate into PTL. The current framework for certification process and procedure should think of contents that resonate C21st thinking policy, support and re-thinking. Teachers are saturated with pedagogical skills at the pre-service level; however, thinking as applied in other human resources is less mentioned in teaching skills to foster strategic planning among teachers. And this has serious ramifications on the future workforce throughout the country and hence, policy should consider Qi including strategic thinking (T-Tel, 2015). Most teachers exhibit significant deficit in innovation and problem solving skills, resulting in over-dependency on authorities. The Ghana decentralization policy should address the issue of GES providing every resource for teaching and learning materials. The policy should enforce teachers to

Print ISSN: ISSN 2054-6297, Online ISSN: ISSN 2054-6300

generate resources and innovative problem solving ideas as part of their entrepreneurial skills for promotion.

Finally, at the teacher education level the inclusion of Qi model may have a long term effect on employability of teacher training graduates. If teachers are versatile and have competitive edge as any other professions their employability because of C21st skill sets, transferable skills, and multi-intelligence becomes easier; teachers themselves will have their self-confidence and passion raised to avoid over-dependency on public or government to provide teaching jobs. Studies have shown that unemployable skill sets in Ghana is because of 'mis-match' skills from higher institutions of learning (T-Tel, 2015). Right from student-teacher recruitment the GES policy and practice should be to raise human performance among teachers with a plausible purposeful intent in teacher leadership (2015b).

Particularly in Ghana the policy and practice leadership should be refocused on relevance and a systematic effort to make the teaching profession equally attractive and prestigious. This new paradigmic thinking about the endowment of Qi assessment and promotion will help in that direction. Gracefully, the T-TEL programme sponsored by UK-DElF in Ghana is aiming at transforming Ghana's teacher education institutes (Colleges of Education) by re-aligning the pedagogy and methods of producing the C21st skill sets through a revolutionary thinking, scientifically, and technologically for a whole system change (T-Tel, 2015). However this idea of considering Qi model to develop PTL should be substantiated with a strict policy implementation which is not far-fetched from T-Tel proposition and of which may requires a further interrogation in both scholarship and evidence based in practice.

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