Research

The Africa Yoga Project: A Participant-Driven Concept Map of Kenyan Teachers' Reported Experiences

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Abstract

Objective: The Africa Yoga Project (AYP) trains and funds Kenyans to teach community yoga classes. Preliminary research with a small sample of AYP teachers suggested the program had a positive impact. This study used concept mapping to explore the experiences of a larger sample.

Methods: Participants brainstormed statements about how practicing and/or teaching yoga changed them. They sorted statements into self-defined piles and rated them in terms of perceived importance. Multidimensional scaling (MDS) of sort data calculated statement coordinates wherein each statement is placed in proximity to other statements as a function of how frequently statements are sorted together by participants. These results are then and mapped in a two-dimensional space. Hierarchical cluster analysis (HCA) of these data identified clusters (i.e., concepts) among statements. Cluster average importance ratings gave the concept map depth and indicated concept importance. Bridging analysis and researchers' conceptual understanding of yoga literature facilitated HCA interpretive decisions.

Results: Of 72 AYP teachers, 52 and 48 teachers participated in brainstorming and sorting/rating activities, respectively. Teachers brainstormed 93 statements about how they had changed. The resultant MDS statement map had adequate validity (stress value = .29). HCA created a 12-cluster solution with the following concepts of perceived change: Identity as a Yoga Teacher; Prosocial Development; Existential Possibility; Genuine Positive Regard; Value and Respect for Others (highest importance); Presence, Acceptance, and Competence; Service and Trust; Nonjudgment and Emotion Regulation (lowest importance); Engagement and Connection; Interpersonal Effectiveness; Psychosocial Functioning; and Physical Competence and Security.

Conclusions: Teachers perceived the AYP as facilitating change across physical, mental, and spiritual domains. Additional research is needed to quantify and compare this change to other health promotion program outcomes.

The Africa Yoga Project (AYP) is a yoga-based, health promotion program intended to foster wellness in Kenya, Africa—an area of substantial poverty and health concerns (World Bank, 2009). With a mission of enhancing physical, emotional, and mental wellbeing, the AYP trains and funds Kenyans to teach free yoga classes throughout Kenya (www.africayogaproject.org). The AYP was co-founded and is directed by a citizen of the United States, Paige Elenson, who initially shared her yoga practice with a group of Kenyan acrobats she met while on safari. This shared interest in yoga grew to what AYP is today. The yoga methodology employed via AYP is power vinyasa yoga, a Western-conceptualized form of yoga that integrates personal inquiry, physicality through yoga poses, and meditation. Currently, the AYP offers yoga classes throughout the Nairobi region in adult community and urban centers, neighborhoods, and schools. Each of the teachers is trained, paid, and mentored. According to program reports, the classes are well attended and the body of yoga teachers is growing (www.africayogaproject.org). Program reports indicate that as many as 5,000 individuals per week are serviced through the free yoga classes.

The AYP may be beneficial for Kenyan citizens as a health promotion and job-training program. First, several scientific investigations found that Africans have benefited from yoga interventions in healthcare and health promotion contexts (Mekonnen & Mossie, 2010; Menon & Glazerbrook, 2013; West, Duffy, & Liang, 2012). To this point, the AYP provides opportunities for both personal and community health promotion as teachers both instruct and practice yoga, a mind-body activity associated with various physical and mental health benefits (as summarized in recent systematic reviews (e.g., Brotto, Mehak, & Kit, 2009; Chong, Tsunkaka, Tsang, Chan, & Cheung, 2011; Cramer, Lang, Klose, Paul, & Dobos, 2012; Field, 2011; Klein & Cook-Cottone, 2013; Ross & Thomas, 2010). Second, the AYP provides job training in the health promo-

tion field through extensive yoga teacher training, mentoring, and employment opportunities with AYP for up to three years as they refine transferable job skills (e.g., how to teach yoga and initiate private yoga businesses). Taken together, the positive impact reported by AYP is consistent with evidence suggesting that the negative effects of poverty can be prevented or mitigated with health education and skills training (Sheikh & Afzal, 2003).

Apart from the possible effects reported through anecdotes and AYP attendance numbers, there has been only one small exploratory study of AYP (i.e., West et al., 2012). This qualitative study was conducted with a sub-sample of AYP teachers (*n* = 7). Researchers utilized unstructured interviews and interview content was analyzed using a thematic approach. Generally, West and colleagues (2012) reported that teachers had positive impressions of their AYP experience. Content analysis yielded five themes, which researchers organized into the acronym S.P.A.C.E. That is, participants reported that teaching for AYP provided a sense of *safety* and *stability* (i.e., S), *personal growth* (i.e., P), an increased capacity for taking *action* (i.e., A), and enhanced ability to meaningfully *connect* with (i.e., C) and *empower* others (i.e., E). Of note, some participants expressed a desire to broaden AYP's scope beyond Nairobi and a need for the resources to do so. Overall, the researchers concluded the AYP has utility for enhancing peace and health at the individual and community levels, while increasing participants' employability.

This current study is important to verify and elucidate the effects of the AYP while expanding the limited body of literature on yoga for African health promotion. Moreover, we believe it is the first yoga investigation to employ concept mapping (see Rosas & Kane, 2012 for an analysis of available studies). Given that the power vinyasa yoga utilized by the AYP has its roots in Western culture and the director is non-native, it may be particularly important to study the experience of the AYP teachers using a scientific approach that conceptualizes knowledge from the perspective of the participants and employs minimal researcher-contrived assumptions or assessment tools (Oktay, 2012). Accordingly, concept mapping was selected as a research methodology well suited to address the aim of the present study—to better understand the experiences of the AYP yoga teachers from their perspective.

Broadly, concept mapping is a generic term used to describe any process used to represent ideas in maps or pictures (Kane & Trochim, 2007). The methodology used for this study refers to a specific form of concept mapping, a mixed-method or integrated approach that entails the steps of participant brain storming, statement analysis and synthesis, unstructured sorting of statements, multidimensional scaling and cluster analysis, and generation of representa-

tional data maps (Kane & Trochim, 2007). This method of concept mapping can also be understood as a type of structured conceptualization method purposely designed to organize and represent ideas from an identified group (Rosas & Kane, 2012). A pooled study analysis of 69 concept mapping studies found that the methodology yields strong internal representational validity and strong sorting and rating reliability estimates (Rosas & Kane, 2012). A method for giving voice to participants, concept mapping has been used to study social justice issues such as complications in child protection services (Pammer et al., 2001), health disparity identification (Risisky et al., 2008), social and cultural environment factors influencing physical activity among African-American adolescents (Baskin, Dulin-Keita, Thind, & Godsey, 2015), and barriers to minority participants in medical research (Robinson & Trochim, 2007). Thus, the current study suitably utilizes concept mapping to better understand the experiences of the Kenyans teaching yoga for AYP.

Methods

The research was conducted in affiliation with a United States (US) university and funded by donations from a US yoga community. Study protocol was approved by the affiliated university's Social and Behavioral Sciences Institutional Review Board and executed in accordance with ethical guidelines for the use of human participants. Two teams of researchers and research assistants from the US and Kenya collected data during July, 2013 in Kenya. The Kenyan research assistants were six AYP lead teachers (i.e., senior members promoted to AYP positions involving combined administrative duties and teaching). Data analysis and reporting took place in the US beginning August, 2013 and is scheduled to continue until May, 2016. This study presents information on the AYP teachers. Studies on the AYP students will be presented in subsequent manuscripts.

Participants

A total of 72 African adults (29 females and 43 males) who completed the AYP yoga teacher training and taught AYP community yoga classes were invited to participate. Invitations were extended through flyers as well as verbal announcements from researchers and the AYP administrators. Of the total 72 AYP teachers invited, 52 and 48 of them participated in Phases I and II, respectively. Teachers ranged in age from 19 to 53 years. Considering that the AYP is a source of employment for teachers, the AYP administration's research role was limited to introducing teachers to researchers. Administrators were not made aware of which teachers participated in order to guard against dual relationships and undue influence. Teachers were fluent in

English or communicated with the assistance of an English translator. Participation was voluntary and verbal consent was obtained. All participants were invited to participate in Phase I and/or II activities.

Study Design

Phase I and II sessions began with participants completing de-identified sociodemographic and yoga experience questionnaires assessing age, gender, family make-up, home country, nationality/tribe, completed education and professional training for participants and their parents, frequency of teaching and practicing yoga, and involvement in other physical activities. This information was later used to assess similarity between Phase I and II participant characteristics since participation in either phase was voluntary.

Phase I: Brainstorming. Participants were divided into three groups (two groups of 17 participants and one group of 18), each of which met for 30-60 min and were led by a primary or co-primary investigator accompanied by two, three, and three research assistants, respectively. At least one of the research assistants in each group was Kenyan. Scripts were used to systematically facilitate brainstorming sessions. After the sociodemographic questionnaire, participants were presented with the following prompt to initiate discussion of experiences practicing and teaching yoga.

> *"Since you began practicing (doing)/teaching yoga with the Africa Yoga Project, in what ways have you changed? What is different about: what you know or understand, what you do, and how you feel?"*

Researchers wrote down participant responses verbatim, reading them back to ensure accuracy and to clarify as needed. Participants were given time and materials to anonymously write and submit any responses they did not want to vocalize. After brainstorming sessions, researchers reviewed responses and discarded or modestly edited statements to eliminate redundancy and enhance clarity. Collaboration among US and Kenyan research assistants in this process maximized the likelihood that final statements were unique, understandable, culturally appropriate, and accurate reflections of participant responses. Final statements were entered into The Concept System (Concept Systems Incorporated, http://www.conceptsystems.com). This concept mapping software arbitrarily numbered statements (for identification) before printing them on sort cards (one statement per 3 x 4 inch card) and surveys (9 x 11 inch sheets of paper with a rating scale corresponding to each statement) for Phase II.

Phase II: Sorting and Rating. Phase I participants were invited to participate in this one-hour phase the following week. After completing the same sociodemographic form used in Phase I, each participant got his/her own stack of sorting cards and was instructed to independently sort these into self-defined piles. Facilitators encouraged participants to sort in whatever manner made sense to them as long as they created a minimum of two non-overlapping piles and fewer piles than there were statements. Participants labelled piles with a note card before researchers secured piles with rubber bands. During the rating and final portion of Phase II, each participant received a statement rating survey with instructions for rating how important each statement was in their change experience on a 5-point rating scale, ranging from 1 (i.e., very unimportant) to 5 (i.e., very important).

Statistical Analysis

Version 21 of the Statistical Package for the Social Sciences (SPSS) software conducted independent t-tests and chi-square analyses comparing Phase I and II participants in terms of sociodemographics and yoga experience (IBM Corporation, 2012). Concept Systems software completed the concept mapping analysis in two steps: multidimensional scaling (MDS) and hierarchical cluster analysis (HCA; Concept Systems Incorporated, http://www.conceptsystems.com).

Specifically, concept mapping involves a sequence of multivariate analyses that begin with a two-dimensional, non-metric, multi-dimensional scaling (MDS) analysis of the item sort data (Kane & Trochim, 2007). Specifically, the sort data are aggregated into a binary, square similarity matrix. The MDS solution that is calculated reflects the best fit x-y coordinates for statements based on how participants sorted them. Each item is represented in a two-dimensional space in terms of its distance from all other items. The closer two points are to one another, the more similar their corresponding statements (Kane & Trochim, 2007). An MDS stress value is calculated as a goodness of fit indicator conveying map validity. The hierarchical cluster analyses (HCA) of MDS coordinates entails a stepwise, iterative process for identifying clusters of points (i.e., groups of related statements; Trochim, 1989).

For this study, investigators examined HCA iterations 2 through 15 and discerned the most appropriate cluster solution. This was an iterative process in which each possible solution, from 2 to 15 clusters, was examined for both interpretability and statistical indicators of adequacy. Interpretability involves researcher interpretation and judgment in terms of the optimal coherence of clusters. The statistical indicator used to help analyze the adequacy of each cluster map is the bridging value, an index ranging from 0 to 1. This value indicates the degree to which a statement was sorted with a particular group of statements versus being sorted with other groups of statements by different participants. Low bridging values for statements in a cluster

suggest these statements tended to be sorted together by participants. High bridging values suggest a construct that could possibly be better represented by more differentiated clusters. Accordingly, high bridging values are a signal to researchers to consider disaggregating or splitting data into smaller clusters. After an optimal cluster map was selected utilizing interpretability and statistical analysis, investigators assigned cluster titles based on item content and participant pile labels. Next, average importance ratings for each statement and a cluster of statements were computed. Last, the map was reviewed by the researchers for the possibility of regional patterns or larger themes that may help explain the relationships among items and clusters. See Kane and Trochim (2007) for a more detailed description of the entire concept mapping process.

Results

Sample Demographics and Characteristics

Of the total 72 AYP teachers, 52 and 48 participated in Phases I and II, respectively. Tables 1 through 3 present data on Phase I and II participants' sociodemographics and experience with yoga and other physical activities. Overall, Phase I and II participants tended to be in their twenties, from Nairobi, head of household, and supporting nearly four dependents. Most participants did not have a disability, but sensory disabilities were most common when a disability was present. The largest group of participants in either phase had at least a secondary education. On average, participants had practiced yoga for nearly 4 years, taught 5 or 6 yoga classes per week, engaged in roughly 3 classes per week, and practiced independently once or twice per week. They engaged in an average of about 2 or 3 non-yoga physical activities on a weekly basis. Outcomes of independent t-tests and chi-square analyses comparing Phase I and II sociodemographic and yoga experience data were not significant at the .05 alpha level. This indicated that Phase I and II participants were statistically indistinguishable in terms of age (t[96] = .164, p = .87), gender (X^2[1] = .25, p = .62), family make-up (t[94] = .38, p =.71), home country (X^2[16] = 12.82, p =.67), nationality/tribe (X^2[1] = .90, p =.34), education (X^2[5] = 3.42, p = .64), professional training (X^2[7] = 3.13, p =.87), frequency of teaching yoga (t[97] = .33, p = .75), frequency of practicing yoga (t[97] = .30, p = .77), and involvement in physical activities other than yoga (t[95] = .42, p =.67).

Concept Mapping

Data for seven Phase II participants were determined to be invalid because of apparently random sorting and, in one case, a survey printing error. Concept mapping results are from analysis of the 41 teachers with complete and valid

Variable	Categories		Phase I		Phase II
		n	% or M (SD)	n	% or M (SD)
Gender					
	Male	35	67%	30	63%
	Female	17	33%	18	37%
Age (years)		52	27 (6.4)	46	27 (6.8)
Living Location					
	Kiambu	3	6%	3	6%
	Eastleigh	2	4%	2	4%
	Haruma Muunguno	5	10%	5	10%
	Kasarami	3	6%	3	6%
	Nairobi	13	25%	13	27%
	Embakasi	4	8%	4	8%
	Kariobangi	3	6%	3	6%
	Kangemi	6	12%	6	13%
	Mwiki, Uthiru, Mathare, Kayole, Dandora, Harboi, Majengo, or Lunga				
	Lunga	7	13%	8	17%
	Missing	5	10%	1	2%
Nationality/ Tribe					
	Kikuyu	40	77%	10	21%
	Luhya	2	4%	3	6%
	Luo	6	11%	6	13%
	Embui	1	2%	1	2%
	Masai	1	2%	1	2%
	Missing	2	4%	27	56%
Head of Household					
	Yes	45	87%	38	79%
	No	7	13%	8	17%
	Missing	0	0%	2	4%
# Dependents		51	3.59 (3.05)	46	3.54 (2.84)
# in Household		52	3.12 (2.36)	44	2.93 (2.38)
Disability Status					
	None	42	81%	32	67%
	Behavioral Disability	2	4%	4	8%
	Emotional Disability	0	0%	1	2%
	Mental Disability	1	2%	0	0%
	Sensory Disability	6	11%	6	13%
	Learning Disability	1	2%	1	2%
	Missing	0	0%	4	8%

Table 1. Phase I and II Sociodemographic Data.

		Phase I			Phase II		
		Participant	Mother	Father	Participant	Mother	Father
Variable	Category	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Highest Education							
	None	1 (2%)	3 (6%)	2 (4%)	2 (4%)	4 (8%)	3 (6%)
	Primary	12 (23%)	13 (25%)	5 (10%)	11 (23%)	15 (31%)	8 (17%)
	Secondary	23 (44%)	10 (19%)	9 (17%)	20 (42%)	7 (15%)	6 (13%)
	University or Graduate	7 (14%)	5 (10%)	4 (8%)	3 (6%)	2 (4%)	5 (10%)
	Other Tertiary College	8 (15%)	10 (19%)	9 (17%)	11 (23%)	11 (23%)	9 (19%)
	Unsure	1 (2%)	10 (19%)	22 (42%)	0 (0%)	5 (11%)	13 (27%)
	Missing	0 (0%)	1 (2%)	1 (2%)	1 (2%)	4 (8%)	4 (8%)
Professional Training							
	None	3 (6%)	10 (19%)	1 (2%)	6 (13%)	9 (19%)	6 (13%)
	Doctor	0 (0%)	1 (2%)	0 (0%)	0 (0%)	1 (2%)	0 (0%)
	Teacher &/or Lecturer	5 (9%)	6 (12%)	4 (8%)	4 (8%)	7 (15%)	5 (10%)
	Nurse	0 (0%)	3 (6%)	0 (0%)	0 (0%)	3 (6%)	0 (0%)
	Crafter	12 (23%)	1 (2%)	1 (2%)	7 (15%)	0 (0%)	0 (0%)
	Engineer	3 (6%)	0 (0%)	10 (19%)	2 (4%)	0 (0%)	8 (17%)
	Economist	0 (0%)	2 (4%)	5 (9%)	0 (0%)	2 (4%)	2 (4%)
	Statistician	0 (0%)	0 (0%)	2 (4%)	0 (0%)	0 (0%)	2 (4%)
	Other/Unsure	28 (54%)	27 (52%)	28 (54%)	28 (58%)	21 (44%)	21 (44%)
	Missing	1 (2%)	1 (2%)	1 (2%)	1 (2%)	4 (8%)	4 (8%)

Table 2 . Phase I and II Participant and Parent Education and Professional Training.

		Phase I		Phase II
Variable	*n*	*M (SD)*	*n*	*M (SD)*
Years Practicing Yoga	52	3.67 (1.56)	46	3.89 (2.31)
Weekly Yoga Classes Taught	52	5.44 (1.83)	47	5.62 (3.36)
Weekly Yoga Classes Taken	52	3.37 (1.47)	47	3.26 (2.18)
Weekly Independent Yoga Practices	52	1.85 (1.42)	47	2.36 (2.69)
# Non-Yoga Physical Activities	52	2.42 (1.21)	45	2.53 (1.36)

Table 3. Phase I and II Participant Yoga Experience and Physical Activity.

sorting and rating data. The MDS mapped the 93 brainstormed statements as depicted in Figure 1. This produced a MDS stress value of .29, which is below the recommended maximum of .39 and suggests the generated map accurately represents the way teachers sorted statements into piles (Sturrock & Rocha, 2000). Based on both the interpretative and statistical data, investigators determined that the optimal cluster solution emerged after 12 HCA iterations (i.e., a 12-cluster solution). Statistically, the 12-cluster solution appeared to be optimal because the bridging values for the clusters were generally low (i.e., Cluster 4 = 0.44, Cluster 5 = 0.46, Cluster 6 = 0.09, Cluster 7 = 0.09, Cluster 8 = 0.14, Cluster 9 = 0.11, Cluster 10 = 0.10, Cluster 11 = 0.49, and Cluster 12 = 0.25). Consistent with methodology, it is important to strike a balance between bridging values and the degree to which the items hold together conceptually (Kane & Trochim, 2007). Within this 12-cluster con-
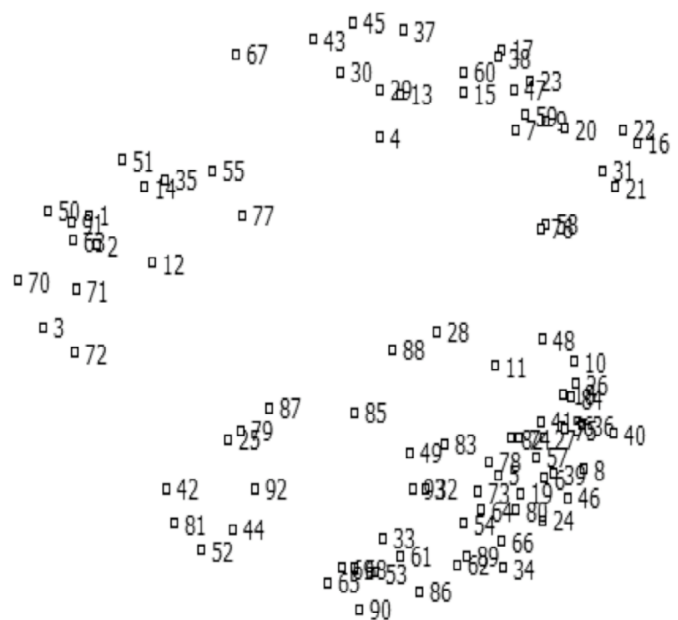
Figure 1. Two-dimensional map of 93 brainstormed statements (represented by numbered points). Points were arranged based on coordinates derived from MDS of sort data.

cept map, Clusters 1, 2, and 3 had comparatively higher average bridging values (i.e., .70, .60, and .59 respectively). However, when other iterations of the concept map (e.g., 10-, 11-, 13-, 14-, and 15-clusters) were considered for appropriateness of merging and splitting of statement groups, the 12-cluster map was judged best in terms of a balance between bridging values and interpretability.

Table 4 (on pages 119–121) lists statements by cluster and presents individual statement bridging values and cluster average bridging values. The number of statements within clusters ranged from 3 to 13 statements.

Table 4 also shows statement importance ratings that convey teachers' perceptions of how important each statement was to their change. Notably, statements with the highest and lowest average ratings were "I value my life more" and "I have less substance use," respectively. Of note, the ratings provide information on how important a particular statement or cluster of statements was rated by the participants. The clustering of the statements reflects the manner in which the items were related to one another by the participants in the sorting phase.

The final statistic in Table 4 is the average importance rating for each cluster or the average of the importance ratings across all participants and all items of a particular cluster. It is important to note that, although there was some variation in importance ratings across items, the range of ratings was limited. Teachers tended to rate statements as "moderately important," "very important," or "extremely important." They were less likely to rate items as "somewhat important" or "relatively unimportant." This third dimension, viewed as height on the concept map, reflects relative differences between the clusters in terms of importance rating.

Figure 2 presents the 12 concept titles and shows clusters as polygons with 1 to 5 layers atop the original statement map (each layer represents a range of cluster average importance ratings). Across clusters, the number of layers ranged from 1 (Clusters 8 [Non-judgment and Emotion Regulation] and 11 [Psychosocial Functioning]) to 5 (Clusters 4 [Genuine Positive Regard] and 5 [Value and Respect for Others]). This indicates that, on average, teachers rated Clusters 8 and 11 statements as least important and Clusters 4 and 5 statements as most important. Overall, the three-dimensional map illustrates how clusters ranged in size, conceptual diversity, distance, and importance.

Summary of Findings

Results of this study are believed to accurately represent the AYP teachers' perceived change given adequate sample size and a total of 93 brainstormed statements. Nearly three-fourths of all AYP teachers participated in brainstorming perceptions of how practicing/teaching yoga changed them. Two-thirds of teachers helped organize this information by sorting brainstormed statements into groups that made sense to them and rating statements in terms of importance. Good adherence to methodological guidelines was supported by: (a) a final sample of 41 participants, which is beyond
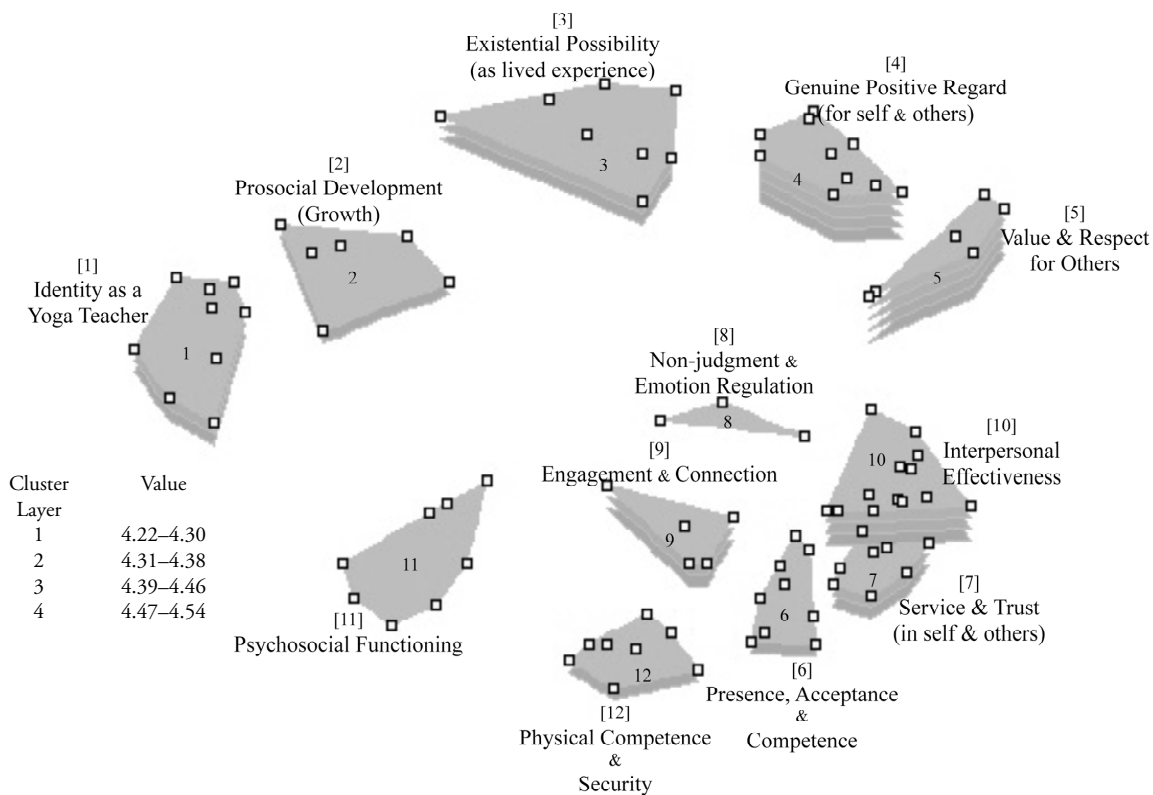
Figure 2. Cluster location is a product of MDS and HCA of sort data. Cluster titles reflect content of statements comprising each cluster. Three-dimensional concept map of clusters (i.e., concepts represented by polygons with borders connecting the outermost points of clusters) reflects the relative differences between the clusters in terms of importance rating.

Table 4. Statements, Importance Ratings and Bridging Values by Cluster

	Cluster 1: Identity as a Yoga Teacher	Importance Rating	Bridging Value
Statement #	Statement	Importance Rating	Bridging Value
72	I have more breath awareness.	4.70	0.63
63	I have a job/career	4.62	0.63
91	I have a better understanding of the system of yoga (e.g., philosophy, postures, history).	4.57	0.64
2	I have become a role model.	4.55	0.65
1	I have become a leader.	4.55	0.65
71	I have more physical energy.	4.49	0.66
70	I have fewer health problems.	4.36	0.72
3	I can identify role models.	4.27	0.73
50	I have less substance use (e.g., alcohol, bhang, shisha, cigarettes).	3.39	1.00
	Cluster Average	**4.39**	**0.70**

	Cluster 2: Prosocial Development (Growth)	Importance Rating	Bridging Value
Statement #	Statement	Importance Rating	Bridging Value
35	I have better manners.	4.64	0.49
12	I have more opportunities.	4.58	0.56
77	I have a more positive attitude.	4.38	0.60
55	I have shown enough courage to bring connection to my family (e.g., talk to/hug parents).	4.28	0.61
51	I have reduced my involvement in criminal activities (e.g., stealing).	4.17	0.65
14	I have less doubt.	4.03	0.70
	Cluster Average	**4.35**	**0.60**

	Cluster 3: Existential Possibility (as lived experience)	Importance Rating	Bridging Value
Statement #	Statement	Importance Rating	Bridging Value
37	My life has more meaning and/or purpose.	4.78	0.45
13	I see more possibilities.	4.74	0.49
45	I apply the lessons I learn in my yoga practice to my life.	4.72	0.50
4	I can face others and tell them what I want or need.	4.57	0.57
43	I use my time more effectively (schedule my time).	4.44	0.62
67	I live a healthier lifestyle (i.e., better eating, sleeping, libido).	4.16	0.64
29	I feel less nervous/anxious.	4.11	0.68
30	I feel less angry.	4.08	0.76
	Cluster Average	**4.45**	**0.59**

	Cluster 4: Genuine Positive Regard (for self and others)	Importance Rating	Bridging Value
Statement #	Statement	Importance Rating	Bridging Value
38	I value my life more.	4.83	0.38
20	I trust myself more.	4.82	0.38
23	I respect myself more.	4.76	0.42
15	I believe in myself more.	4.74	0.42
60	I realize that everything on this earth is connected (we are one).	4.69	0.42
59	I feel and give more love.	4.67	0.43
9	I act as a peacemaker.	4.55	0.46
47	I speak straight and tell the truth more (I am authentic).	4.34	0.48
17	I gossip less.	4.26	0.51
7	I share more of myself.	3.92	0.51
	Cluster Average	**4.56**	**0.44**

Cluster 5: Value and Respect for Others			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
22	I respect others' property more.	4.71	0.33
16	I respect others' confidentiality.	4.66	0.41
21	I respect others more.	4.63	0.44
31	I feel more happiness.	4.63	0.52
58	I can more easily look other people in the eye.	4.61	0.52
76	I have more hope.	4.49	0.54
	Cluster Average	**4.62**	**0.46**

Cluster 6: Presence, Acceptance and Competence			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
54	I am more focused in the things that I do.	4.72	0.01
73	I am more able to express myself.	4.54	0.01
89	I am more accepting of feedback.	4.51	0.03
78	I am more present.	4.51	0.07
62	I am more connected to the higher one/a higher power.	4.49	0.10
66	I am more independent.	4.40	0.10
64	I am more able to support myself/others (e.g., financially, emotionally).	4.27	0.12
34	I am more accepting of my personal condition (e.g., disabilities, health challenges).	4.14	0.17
5	I am more outgoing.	3.74	0.19
	Cluster Average	**4.37**	**0.09**

Cluster 7: Service and Trust (in self and others)			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
57	I am more of service.	4.75	0.04
39	I am more able to be there for others.	4.61	0.07
46	I am more able to align my behaviors with my beliefs and values.	4.58	0.08
6	I am more confident.	4.57	0.08
24	I am more open to receiving help.	4.47	0.10
80	I am more able to let go of my past.	4.41	0.11
8	I am more social and have a larger social circle.	4.32	0.13
19	I am more trusting of others.	3.89	0.16
	Cluster Average	**4.45**	**0.09**

Cluster 8: Non-judgment and Emotion Regulation			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
88	I am less judgmental.	4.43	0.09
28	I am better able to manage my emotions (anger, anxiety, sadness).	4.26	0.16
11	I am open to others even if they're not open to me.	3.97	0.16
	Cluster Average	**4.22**	**0.14**

Cluster 9: Engagement and Connection			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
32	I am more hard working.	4.61	0.07
85	I am better able to connect with people who are different from me (e.g., different religions, tribes, ethnicities, ways of being).	4.59	0.08
93	I am more accountable in my relationships.	4.41	0.10
49	I am more able to face fear.	4.39	0.10
83	I am more playful.	4.30	0.19
	Cluster Average	**4.46**	**0.11**

Cluster 10: Interpersonal Effectiveness			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
27	I am more calm, relaxed, and peaceful.	4.68	0.00
36	I am more able to say I'm sorry.	4.64	0.02
41	I am more loving to others.	4.61	0.04
40	I am more likely to stand for others.	4.58	0.04
84	I am more empowering of others.	4.54	0.07
48	I am a better listener.	4.53	0.09
10	I am open to new people.	4.53	0.09
18	I am more trustworthy.	4.51	0.11
75	I am more humble.	4.50	0.13
56	I am more generous.	4.47	0.14
74	I am more able to express my feelings.	4.41	0.16
82	I am more curious.	4.22	0.16
26	I am more patient.	4.18	0.20
	Cluster Average	**4.49**	**0.10**

Cluster 11: Psychosocial Functioning			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
44	I am better at "keeping" time (being on time).	4.53	0.34
52	I am better at setting and working toward goals.	4.51	0.38
92	I am a better communicator.	4.46	0.39
87	I am less violent (e.g., verbally, physically).	4.44	0.44
42	I am less idle.	4.09	0.50
81	I am a better public speaker.	4.06	0.60
25	I am less reactive.	3.97	0.61
79	I am less caught up in my thoughts.	3.97	0.65
	Cluster Average	**4.25**	**0.49**

Cluster 12: Physical Competence and Security			
Statement #	**Statement**	**Importance Rating**	**Bridging Value**
61	I am more connected to my mind, body and spirit	4.72	0.19
69	I am more physically fit.	4.57	0.19
53	I am more creative (e.g., painting, singing, dancing, beading).	4.54	0.22
86	I am more comfortable with physical assists.	4.51	0.24
68	I am more physically flexible.	4.46	0.26
33	I am more accepting of my situation (e.g., poverty, family problems).	4.40	0.26
90	I am more educated (e.g., literacy, computer skills, sign language).	4.22	0.32
65	I am more financially stable.	3.54	0.32
	Cluster Average	**4.37**	**0.25**

Table 5. Rank-Ordered (High to Low) Cluster Average Importance Ratings

Cluster #		**Average Importance Rating**
5	Value and Respect for Others	4.62
4	Genuine Positive Regard (for self and others)	4.56
10	Interpersonal Effectiveness	4.49
9	Engagement and Connection	4.46
7	Service and Trust (in self and others)	4.45
3	Existential Possibility (as lived experience)	4.45
1	Identity as a Yoga Teacher	4.39
6	Presence, Acceptance, and Competence	4.37
12	Physical Competence and Security	4.37
2	Prosocial Development (Growth)	4.35
11	Psychosocial Functioning	4.25
8	Non-judgment and Emotion Regulation	4.22

the minimum of 20 participants recommended for validity (Jackson & Trochim, 2002; Rosas & Kane, 2012); (b) a total of 93 statements for Phase II activities, providing an exhaustive list of teachers' reported perceptions without exceeding the suggested maximum of 100 statements (Trochim, 1989, Kane & Trochim, 2007; Rosas & Kane); and (c) a MDS stress index of .29, which is below the recommended maximum of .39 and suggests the generated map accurately represents the way teachers sorted statements into piles (Sturrock & Rocha, 2000).

Teachers' perceptions of how they changed since teaching/practicing yoga with the AYP were best summarized by the following 12 main concepts, ordered from most to least important based on teachers' importance ratings: Value and Respect for Others; Genuine Positive Regard (for self and others); Interpersonal Effectiveness; Engagement and Connection; Service and Trust (in self and others); Existential Possibility (as lived experience); Identity as a Yoga Teacher; Physical Competence and Security; Presence, Acceptance, and Competence; Prosocial Development (Growth); Psychosocial Functioning; and Non-judgment and Emotion Regulation. Specific statements rated as most and least important, on average, were "I value my life more" and "I have less substance use."

Discussion

Study Overview

Prevention and health promotion initiatives like the AYP are being designed and implemented to address health disparities among the underserved populations of Africa. By training and funding natives to teach yoga throughout Kenya, the AYP incorporates biopsychosocial interventions intended to enhance mental and physical functioning at the individual and community levels. According to AYP reports, earlier research on the benefits of yoga and a preliminary AYP investigation suggested the program was likely to positively impact Kenyan wellbeing. This concept mapping study is one of the first to systematically investigate this expectation and the AYP teachers' perceived personal change since becoming involved with the project.

Clusters

Identity as a Yoga Teacher (Cluster 1) is comprised of statements that reflect characteristics typically embodied by yoga practitioners (e.g., "I have more breath awareness," "I have a better understanding of the system of yoga," "I have become a role model"). The statements in this cluster are consistent with the literature on yoga practice outcomes, such as improved physical health (for reviews, see Ross & Thomas, 2010 and Field, 2011), pulmonary functioning (Abel, Lloyd, & Williams, 2013), increased energy (Groessl,

Weingart, Johnson, & Baxi, 2012) and less substance use (Posadzki, Choi, Lee, & Ernst, 2014). The notion that statements represented yoga teacher characteristics is further supported by literature on the development of any teacher's identity. It has been theorized that teacher identity formation entails identifying and internalizing knowledge about the subject at hand (Beijaard, Verloop, & Vermunt, 2000). This is similar to the AYP teachers learning about the system of yoga. Other teacher identity theories suggest teachers choose prototypes for their behavior and worldview while formulating ideas about the role they play in the profession or in others' lives (Beauchamp & Thomas, 2009). These developments parallel the AYP teachers' statements on identifying as and becoming role models.

Prosocial Development (Cluster 2) statements are generally prosocial in nature (e.g., "I have better manners," "I have shown enough courage to bring connection to my family," and "I have reduced my involvement in criminal activities"). Prosociality is characterized by behavior that is other-oriented and intended for others' benefit (Knight & Carlo, 2012). Cluster statements pertaining to manners and reduced criminal activity imply the operational behaviors (e.g., perspective-taking, empathy, sympathy) commonly used to study prosocial development (Penner & Finkelstein, 1998).

The Existential Possibility (as lived experience) includes items that reflect existential living and wellness, such as "My life has more meaning and/or purpose," "I apply the lessons I learn in my yoga practice to my life," and "I live a healthier lifestyle." The statements in the cluster are similar to the construct of wellbeing discussed in the wellness literature. The term *dwelling-mobility* has been described as a profound sense of wellbeing characterized by contentment with the current situation yet awareness of and movement toward potential improvement (Todres & Galvin, 2010). Similarly, Cluster 3 contains statements suggesting peace with where one is (e.g., "I am less anxious") and contemplation of what one can become (e.g., "I see more possibilities").

Genuine Positive Regard (Cluster 4) is made up of statements describing a psychological, spiritual, and social environment akin to the one Carl Rogers (1992) posited is necessary for growth toward one's full potential. Cluster 4 statements referencing truth and openness (e.g., "I speak straight... am authentic", "I share more of myself") operationalize the genuineness Rogers said must be communicated in a relationship to create change. Statements pertaining to increased value, respect, belief and love toward oneself and others are reminiscent of the caring and unquestioning acceptance that characterizes Roger's unconditional positive regard (1992).

Value and Respect for Others (Cluster 5) includes statements such as "I respect others' property more," "I respect

others' confidentiality more," and "I respect others more." These items tend to reflect a shift toward the respect of others associated with teaching and practicing yoga with the AYP. Statements in Cluster 6 (i.e., Presence, Acceptance, and Competence) reflect a more intrapersonal shift and include statements such as "I am more focused on the things that I do," "I am more able to express myself," and "I am more accepting of feedback." Relatedly and seated proximally between Clusters 5 and 6 on the cluster map, Cluster 7 (i.e., Service and Trust [in self and others]) is comprised of statements such as "I am of more service," "I am more able to be there for others," and "I am more able to align my behaviors with my beliefs and values." In sum, these three clusters suggest that the AYP yoga teachers found their yoga teaching and practice to improve their respect of others, acceptance and presence with self, and service to both self and others.

With respect to Non-judgment and Emotion Regulation (i.e., Cluster 8), the concept of non-judgment is a critical feature of mindfulness (Kabat-Zinn, 1990). Non-judgment has been presented as a means of cultivating emotion regulation through Dialectical Behavior Therapy (Linehan, 1993a). Therefore, teachers' tendency to group the concepts of non-judgment and emotion regulation together is consistent with psychological theory and practice. Interpersonal Effectiveness (Cluster 10) and Psychosocial Functioning (i.e., Cluster 11) are supported by research on psychosocial constructs (Conboy, Wilson, & Braun, 2010). Such research assesses constructs viewed as components of psychosocial functioning, including a more internal locus of control and greater self-efficacy in private and interpersonal contexts. For example, Cluster 11 statements pertain to setting/progressing toward goals, controlling violent behavior and reactivity, and decreasing idleness, suggesting a more internal locus of control. Statements about perceiving oneself as better at various personal and interpersonal behaviors (e.g., punctuality, communication, goal-orientation) reflect increased self-efficacy.

As expected with the teaching and practice of yoga, Physical Competence and Security (Cluster 12) reflects an increased sense of competence in both the physical and vocational realms. This cluster was comprised of items such as "I am more physically fit," "I am more comfortable with my physical assists," and "I am more educated." This is consistent with research suggesting that Africans have benefited from yoga interventions (Mekonnen & Mossie, 2010; Menon & Glazerbrook, 2013; West et al., 2012).

Theoretical interpretations
Further investigation of the model, clusters, and their locations on the map suggested that two bipolar dimensions might underlie the broad set of reported effects of yoga
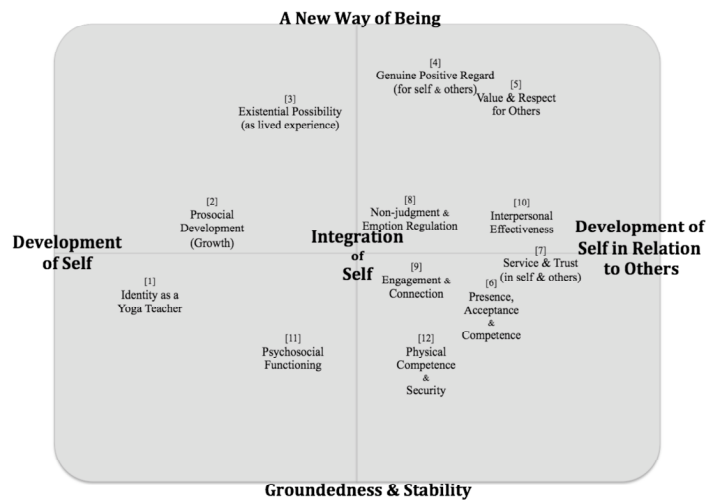
Figure 3. Two-dimensional model of concepts in simplified domains constructed through interpretation of emergent concepts and comparison with literature.

expressed by the AYP teachers (see Kane & Trochm, 2007 and Donnelly, Donnelly, & Grohman, 2005 for illustrations of this methodology). Accordingly, investigators created the simplified theoretical model in Figure 3, which reflects the horizontal dimension ranging from the development of self to the development of self in relation to others. The vertical dimension ranged from groundedness and stability to a new way of being. Finally, items at the center present as more reflective of the integration of the self. That is, concepts can be grouped based on the extent to which they are more about the self versus others, accepting what is versus moving toward what could be, or an amalgamation of self, other, stability and change. These larger themes are presented here theoretically as a way of tying together the overall map.

Comparing Results to Health Promotion Programmatic Literature
Results of this study are consistent with the literature on other health promotion programs. Perceptions of yoga in this and earlier health promotion studies were overwhelmingly positive. Earlier research suggested yoga and psycho-educational programs are associated with improvements in stress management, perceived wellbeing, self-regulation, self-control, self-competence, self-compassion, effective/pro-health behavior, physicality and mindfulness (Berger, Silver, & Stein, 2009; Bryan, Zipp, & Prasher, 2012; Cook-Cottone, Jones, & Haugli, 2010; Gard et al., 2012; Mendelson et al., 2010; Ramadoss & Bose, 2010; Sale, Weil, & Kryah, 2012; Scime & Cook-Cottone, 2008; Thomley, Ray, Cha, & Bauer, 2011; Wilson, Marchesiello, & Khalsa, 2008). The AYP teachers described similar benefits, such as perceiving more meaning, purpose, and connectedness across mind, body, and spirit. Other similarities

to outcomes in the literature were reflected by statements about decreased negative affect and becoming more positive, relaxed/non-reactive, able to manage emotions, goal-oriented, hard working, confident, independent, physically fit and healthy, and present.

The Africa-based literature on yoga for healthcare/treatment has identified several benefits that were unique compared to health promotion programs that have been studied outside of Africa. These benefits pertained to interpersonal effectiveness, health and financial literacy, and community concern (Bonthuys, Botha, Nienaber, Freeka, & Kruger, 2011; Mekonnen & Mossie, 2010; Menon & Glazerbrook, 2013; West et al., 2012). In this study, a large portion of the AYP teachers' statements reflected similar enhancements in interpersonal functioning and community concern (e.g., becoming more of a leader, role model, and peacemaker; well-mannered; able to listen and communicate; patient; assertive; respectful; trusting and trustworthy; open to cultural differences; outgoing/social; generous; willing to give/receive help; empowering of others; loving; and connected). Health literacy also appeared improved given reportedly increased education and knowledge about the system of yoga, which emphasizes healthy living. While the AYP teachers may not have enhanced their understanding of finances, their financial situation apparently improved given reportedly greater financial security and more stable employment.

The preliminary investigation on a subsample of the AYP teachers identified themes that were similar to the concepts found in this study (West et al., 2012). Teachers in both studies described experiences of enhanced security, goal-oriented behavior, growth, perceived connectedness, and empowerment. A number of the AYP teachers' statements about how they changed through the AYP were not discussed by West et al. or other published studies. Perceived changes that were apparently unique to this investigation included enhanced public speaking skills, timeliness, creativity, and career development. Change along these lines seems consistent with the activities and skills associated with teaching yoga (e.g., addressing groups, managing class time, creating yoga class lesson plans, and building/maintaining a career as a yoga instructor). Considering most of the earlier research was smaller scale (i.e., the West et al. preliminary study) or focused on the benefits of practicing (not teaching) yoga, it makes sense that unique benefits were identified in this study given its equal if not greater emphasis on teaching yoga.

Implications
Results of this study suggest teaching and practicing with the AYP are associated with positive changes in line with the program's mission to enhance physical, emotional, and mental wellbeing. Teachers' overwhelmingly positive perceptions of the program support the continuation or even growth of the AYP. Results extend earlier research on the AYP considering data from nearly 60% of all AYP teachers were used for analyses, thereby reflecting perceptions of a substantially larger portion of teachers compared to that previously used (i.e., a convenience sample of less than 10% of teachers; West et al., 2012). Concepts identified in this study can be used to guide future research and program evaluation of the AYP as they are measurable constructs that inform outcome expectations.

This study contributes to the literature on yoga-based health promotion by providing additional support for the utility of combined yoga and psychoeducational approaches for creating positive change. Moreover, it shows that a yoga-based intervention is appropriate and feasible for health promotion in non-clinical and impoverished African samples. Also, this study adds to the yoga literature by demonstrating the feasibility of a concept mapping approach to yoga research.

Study outcomes corroborate many of the health benefits documented in earlier health promotion research and suggest several unique benefits (i.e., perceived improvements in public speaking skills, timeliness, creativity, and career development). Insofar as benefits above and beyond those associated with other yoga-based programs are attributable to the fact that the AYP teachers practiced and taught yoga, the inclusion of yoga teacher training and opportunities to teach through future health promotion programs warrants consideration.

Results suggest the positive change associated with teaching and practicing yoga with the AYP is impactful not only for individual teachers but also at the interpersonal and community levels. The program creates employment opportunities and, in addition to teachers rating finding a career through AYP as one of the top 25 most important statements, job creation has obvious economic implications. Interestingly though, the statements ranked highest in terms of importance pertained to finding trust, meaning, and respect through the AYP while a statement referencing financial stability was rated as one of the least important. This suggests that, despite the poverty permeating Kenya, teachers regarded financial gains as less important than positive experiential changes.

Social changes associated with the program also emerged as a priority for the AYP teachers. More than half of the identified concepts were interpersonal in nature or had relational implications (i.e., Value and Respect for Others, Genuine Positive Regard, Interpersonal Effectiveness, Engagement and Connection, Service and Trust, Prosocial Development, and Psychosocial Functioning). Furthermore, the five concepts with the highest average

importance ratings were socially-oriented. The social implications of the AYP are exemplified by several statements and concepts in particular. Reportedly decreased criminality and associated behaviors like substance use have social implications at the relational and community levels. The Engagement and Connection concept includes statements about learning how to relate to people from different backgrounds. This seems valuable given teachers' reports that tribal wars, stereotyping, and judgment are common in the current Kenyan social climate. The Value and Respect for Others concept directly describes how teachers' changes are extended to others, and the Interpersonal Effectiveness concept is predominantly about skills taught to enhance relational functioning (Linehan, 1993b). Overall, the prevalence and high perceived importance of social changes associated with the AYP suggest programs targeting interpersonal functioning and community are likely to be appreciated as well as impactful in Kenya.

Limitations

This study explores a unique yoga-based wellness program, thus the results most appropriately reflect outcomes associated with teaching/practicing with the AYP. Differential effects of teaching versus practicing yoga were not conclusively discerned. The extent to which these results generalize to non-teaching yoga practitioners, participants in programs other than the AYP, and program participants in areas with different demographic/cultural characteristics is unclear. It should also be noted that the limited range in importance ratings introduces the possibility of a ceiling effect.

Directions for Future Research

Additional research is needed to clarify and extend the results of this study. More specific program evaluation of the AYP is warranted and using outcome measures consistent with the concepts that emerged in this study will be important. In particular, more quantitative assessment will be useful for quantifying the AYP teachers' change and comparing the AYP outcomes to those of other programs and/or revised versions of the AYP. Another meaningful comparison will be one between yoga teachers and students.

References

Abel, A., Lloyd, L., & Williams, J. (2013). The effects of regular yoga practice on pulmonary function in healthy individuals: A literature review. *Journal of Alternative and Complementary Medicine, 19*(3), 185-190. doi:10.1089/acm.2011.0516

Africa Yoga Project (2014). About Africa Yoga Project. Retrieved May 17, 2014 from http://www.africayogaproject.org

Baskin, M. L., Dulin-Keita, A., Thind, H., & Godsey, E. (2015). Social and cultural environment factors influencing physical activity among African-American adolescents. *Journal of Adolescent Health, 56*(5), 536-542.

Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. *Cambridge Journal Of Education, 39*(2), 175-189.doi:10.1080/03057640902902252

Beijaard, D., Verloop, N., & Vermunt, J. D. (2000). Teachers' perceptions of professional identity: An exploratory study from a personal knowledge perspective. *Teaching and Teacher Education, 16*, 749-764. Retrieved from http://www.journals.elsevier.com/teaching-and-teacher-education

Berger, D., Silver, E., & Stein, R. (2009). Effects of yoga on inner-city children's well-being: A pilot study. *Alternative Therapies in Health & Medicine, 15*(5), 36-42. Retrieved from http://www.alternative-therapies.com

Bonthuys, A., Botha, K. H., Nienaber, A. W., Freeka, F. E., & Kruger, A. (2011). The effect of the Lifeplan Programme on the psychological well-being of a rural community in South Africa. *Journal of Psychology in Africa, 21*(3), 421-428. Retrieved from http://dspace.nwu.ac.za/handle/10394/7662

Brotto, L. A., Mehak, L., & Kit, C. (2009). Yoga and sexual functioning: A Review. *Journal of Sex and Marital Therapy, 35*, 378-390. doi:10.1080/00926230903065955

Bryan, S., Zipp, G., & Parasher, R. (2012). The effects of yoga on psychosocial variables and exercise adherence: A randomized, controlled pilot study. *Alternative Therapies in Health & Medicine, 18*(5), 50-59. Retrieved from http://www.alternative-therapies.com

Chong, C., Tsunaka, M., Tsang, H., Chan, E., & Cheung, W. (2011). Effects of yoga on stress management in healthy adults: A systematic review. Alternative *Therapies in Health and Medicine, 17*(1), 32-38. Retrieved from http://www.alternative-therapies.com

Concept Systems Incorporated. *The Concept System Software.* Retrieved May 10, 2014 from http://www.conceptsystems.com/content/view/the-concept-system.html

Conboy, L., Wilson, A., & Braun, T. (2010). Moving beyond health to flourishing: The effects of yoga teacher training. *The Scientific World Journal, 10*, 788-795.

Cook-Cottone, C., Jones, L. A., & Haugli, S. (2010). Prevention of eating disorders among minority youth: A matched-sample repeated measures study. *Eating Disorders, 18*, 361-376. doi:10.1080/10640266.2010.511894

Cramer, H., Lange, S., Klose, P., Paul, A., & Dobos, G. (2012). Yoga for breast cancer patients and survivors: A systematic review and meta-analysis. B*MC Cancer, 12*, 412-425. doi: 10.1186/1471-2407-12-412

Donnelly, J. P., Donnelly, K., & Grohman, K. K. (2005). A multi-perspective concept mapping study of problems associated with traumatic brain injury. *Brain Injury, 19*, 1077-1085.

Everitt, B. (1980). *Cluster Analysis* (2nd Ed.). New York, NY: Halsted Press.

Field, T. (2011). Yoga clinical research review. *Complementary Therapies in Clinical Practice, 17*, 1-8. doi:10.1016/j.ctcp.2010.09.007

Gard, T., Brach, N., Holzel, B.K., Noggle, J.J., Conboy, L.A., & Lazar, S.W. (2012). Effects of a yoga-based intervention for young adults on quality of life and perceived stress: The potential mediating roles of mindfulness and self-compassion. *The Journal of Positive Psychology, 7*(3), 165-175. doi:10.1080/17439760.2012.667144

Groessl, E., Weingart, K., Johnson, N., & Baxi, S. (2012). The benefits of yoga for women veterans with chronic low back pain. *Journal of Alternative and Complementary Medicine, 18*(9), 832-838. doi:10.1089/acm.2010.0657

IBM Corporation (2012). *IBM SPSS Statistics for Windows, Version 21.0.* Armonk, NY: IBM Corporation.

Jackson, K. M., & Trochim, W. M. K. (2002). Concept mapping as an alternative approach for the analysis of open-ended survey responses. *Organizational Research Methods, 5*, 307-336.doi: 10.1177/109442802237114

Kane, M., & Trochim, W. (2007). *Concept mapping for planning and evaluation.*: Thousand Oaks, CA: Sage Publications.

Klein, J. E., & Cook-Cottone, C. P. (2013). The effects of yoga on eating disorder symptoms and correlates: A review. *International Journal for Yoga Therapy, 23*(2), 41-50. Retrieved from http://www.iayt.org

Knight, G. P., & Carlo, G. (2012). Prosocial development among Mexican American youth. Child *Development Perspectives, 6*(3), 258-263. doi:10.1111/j.1750-8606.2012.00233.x

Linehan, M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder.* New York, NY: Guilford Press.

Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder.*: New York, NY: Guilford Press.

Mekonnen, D., & Mossie, A. (2010). Clinical effects of yoga on asthmatic patients: A preliminary clinical trial. *Ethiopian Journal of Health Science, 20*(2), 107-112. Retrieved from http://ejhs.ju.edu.et

Mendelson, T., Greenberg, M., Dariotis, J., Gould, L., Rhoades, B., & Leaf, P. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology, 38*(7), 985-994. doi: 10.1007/s10802-010-9418-x

Menon, J. A. & Glazebrook, C. (2013). A randomized control trial to evaluate yoga-based peer support group for HIV positive Zambian adolescents. *Journal of AIDS and HIV Research, 5*(1), 12-19.doi: 10.5897/JAHR12.027

Oktay, J. S. (2012). *Grounded theory.* New York, NY: Oxford University Press.

Pammer, W., Haney, M., Wood, B. M., Brooks, R. G., Morse, K., Hicks, P., et al., (2001). Use of telehealth technology to extend child protection team services. *Paediatrics, 108*, 584-590.

Penner, L. A., & Finkelstein, M. A. (1998). Dispositional and structural determinants of volunteerism. *Journal of Personality and Social Psychology, 74*, 525-537. doi:10.1037/0022-3514.74.2.525

Posadzki, P., Choi, J., Lee, M., & Ernst, E. (2014). Yoga for addictions: A systematic review of randomised clinical trials. F*ocus On Alternative & Complementary Therapies, 19*(1), 1-8. doi:10.1111/fct.12080

Ramadoss, R. & Bose, B. K. (2010). Transformative life skills: Pilot studies of a yoga model for reducing perceived stress and improving self-control in vulnerable youth. *International Journal of Yoga Therapy, 20*, 75-80. Retrieved from http://www.iayt.org

Risisky, D., Hogan, V. K., Kane, M., Burt, B., Dove, C., & Payton, M. (2008). Concept mapping as a tool to engage a community in health disparity identification. *Ethnicity & Disease, 18*, 77-83.

Robinson, J. M., & Trochim, W. M., K. (2007). An examination of community members', researchers', and health professionals' perceptions of barriers to minority participation in medical research: An application of concept mapping. *Ethnicity and Health, 12*, 521-539.

Rogers, C. R. (1992). The necessary and sufficient conditions of therapeutic personality change. *Journal Of Consulting And Clinical Psychology, 60*(6), 827-832. doi:10.1037/0022-006X.60.6.827

Rosas, S.R. & Kane, M. (2012). Quality and rigor of the concept mapping methodology: A pooled study analysis. *Evaluation and Program Planning, 35*, 236-245. doi:10.1016/j.evalprogplan.2011.10.003

Ross, A., & Thomas, S. (2010). The health benefits of yoga and exercise: A review of comparison studies. *The Journal of Alternative and Complementary Medicine, 16*(1), 3-12. doi:10.1089/acm.2009.0044

Sale, E., Weil, V., & Kryah, R. (2012). An exploratory investigation of the Promoting Responsibility through Education and Prevention (PREP) after school program for African American at-risk elementary school students. *School Social Work Journal, 36*(2), 56-72. Retrieved from http://lyceumbooks.com/sswjournal.htm

Scime, M., & Cook-Cottone, C. (2008). Primary prevention of eating disorders: A constructivist integration of mind and body strategies. I*nternational Journal of Eating Disorders, 41*, 134-142. doi:10.1002/eat.20480

Sheikh, M. & Afzal, M. (2003). Community empowerment for health and development. *World Health Organization Community-based Initiative Series.* Retrieved from http://whqlibdoc.who.int/emro/2003/WHO-EM_CBI_019_E_G_eng.pdf

Sturrock, K. & Rocha, J. (2000). A multidimensional scaling stress evaluation table. *Field Methods, 12*(1), 49-60. doi:10.1177/1525822X0001200104

Thomley, B. S., Ray, S. H., Cha, S. S. & Bauer, B. A. (2011). Effects of a brief, comprehensive, yoga-based program on quality of life and biometric measures in an employee population: A pilot study. *Explore, 7*, 27-29. doi:10.1016/j.explore.2010.10.004

Todres, L. & Galvin, K. (2010). "Dwelling-mobility:" An existential theory of well-being. *International Journal of Qualitative Studies on Health & Well-Being, 5*(3), 1-6. doi:10.3402/qhw.v5i3.5444

Trochim, W. (1989). An introduction to concept mapping for evaluation and planning. *Evaluation and Program Planning, 12*(1), 1-16.doi:10.1016/0149-7189(89)90016-5

West, J.I., Duffy, N., & Liang, B. (2012). Creating S.P.A.C.E. through yoga: Africa Yoga Project teachers promote personal transformation, peaceful communities, and purpose-filled service [Abstract]. *International Journal of Yoga Therapy, 22*, 53. Retrieved from http://www.iayt.org

Wilson, A., Marchesiello, K., & Khalsa, S. (2008). Perceived benefits of Kripalu Yoga Classes in diverse and underserved populations. *International Journal of Yoga Therapy, 18*, 65-71. Retrieved from http://www.iayt.org

World Bank. (2009). *Kenya—Poverty and inequality assessment: Executive summary and synthesis report.* Retrieved from http://documents.worldbank.org/curated/en/2009/04/10842664/kenya-poverty-inequality-assessment-executive-summary-synthesis-report