The impact of African dance on psychosocial and educational outcomes

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ABSTRACT

This project intended to create conditions that are conducive to helping minority students achieve success in learning, in school, and in life. The project is a response to the rising rate of health and career disparities among minority U.S. adolescents. Based on the theoretical framework of the cultural historical activity theory, this attempt aimed to use the dance activities for teaching, training, and learning. This study sought to use the dance to facilitate student learning of research processes and also optimize associated academic and psychosocial processes, by engaging in the culturally relevant activity of African dance. The specific target population included minority undergraduate students. An African dance instructor conducted the class once a week for 75 minutes for 3 months. Ten student researchers recruited participants and evaluated the impact of African dance on several dependent variables. Results were analyzed using parametric statistics. Findings indicated a significant effect of participating in the dance on dependent variables such as, learning the neuroscience associated with the activity and learning the Oromo dialect; meanings related to the activity of African dance; self-efficacy, racial identity, and positive attitudes towards minority-serving academic institutions. Through dissemination from the local to the global level, the broader impact sought by this project is to establish financially secure families by involving the workforce of tomorrow in activities that will promote positive psychosocial outcomes and STEM learning concurrently.

Keywords: instruction, minority students, African dance, neuroscience, language

Several researchers have established the ubiquity of instructional pedagogies that are culturally relevant. The inspiration for this study is the symbolism associated with the Sankofa bird, an Akan symbol which means "go back and retrieve." This symbol signifies that forward progress is based on the critical examination of the past and a fostering of principles that are relevant to our contemporary lives. The glory of African dance informed this study, thus, facilitating the use of African dance as an educational and psychosocial tool to initiate and deliver positive student learning outcomes.

Theoretical and Empirical Framework

The framework for this study is the cultural historical activity theory (Roth, Lee, & Hsu, 2009) the basis of which are the socio-psychological approaches of human development. Specifically, Camillo and Mattos (2014) suggest considering three different categories when developing activities; the subject, the content, and the outcome of the activity. The purpose of this study was to enhance the learning of academic subjects such as neuroscience and foreign language, in addition to psychosocial consequences such as self-efficacy, racial identity, and attitudes towards black-owned businesses, using the context of African dance, to deliver positive educational and psychosocial outcomes. This theoretical framework has also informed teaching and learning practices at a university in South Africa (Lautenbach,2014). This theoretical foundation justifies the use of activities from the African culture as a pedagogical tool, that are relevant to the current African American students who study at our historically black college in the southeastern part of the country. Creating such novel ‘spaces’ for learning has positive psychosocial outcomes. Schwartz (2014), supports the creation of qualitatively different ‘counterspaces' in educational settings because they confirm the identity, life, and experiences of the marginalized group. This project intended to create a novel ‘counterspace’ and use a culturally relevant activity as a psychosocial and pedagogical tool. Associating subject related content with the dance activities was expected to affirm the identities and experiences of the minority undergraduate students at our institution.

Culturally Relevant Pedagogy

Researchers have identified elements of culturally relevant teaching and learning. To make the learning environment one of belonging and caring, including narratives of one's life's experiences and sharing one's vulnerabilities, is an important strategy (Berry & Mizelle, 2005). Such stories in verbal or in writing as well as a mutual sharing of vulnerabilities result in a teaching and learning environment which is both engaged and productive. Plus, awareness of the student cultures and the associated learning styles are essential for an effective teaching and learning environment (Almanza & Mosley, 1980). For example, since African American children move significantly more often than their Caucasian peers, using this behavior for teaching and learning is consequential. Paying attention to naturally occurring reactions can thus be used to develop rather than hinder teaching and learning.

Tsurusaki et al. (2013) demonstrated the power of transforming learning across boundaries in STEM learning. Making children identify the relationships between elements, processes and systems in school with their everyday life, wields a powerful pedagogical tool. Drawing on the religious practices of the African church, especially the reciprocal ‘call and response method’ is another critical pedagogical practice. The cooperative involvement in

learning and the use of the African traditions especially rhythm and movements are other elements which are crucial components of a culturally relevant pedagogy (Diller & Moule, 2005).

Today we are faced with educating the millennials, the 'hip hop' (Dagbovie, 2006). According to Dagbovie (2006, para 29), the pedagogical devices for teaching in the 21st century classroom include: (a) Use of one's own personal experience ("autobiography as a learner"), (b) the existing scholarship on teaching and learning African American history ("theoretical literature"), (c) conversations with experts in the African American historical profession ("colleagues' experiences") and, (d) interaction with students (the "learner's eyes"). A qualitative exploration by Tucker, Herman, Pedersen, Vogel, Reinke (2000) of the academic challenges and associated solutions experienced by African American students. Themes extracted from the interviews identified the following solutions: (a) preparation and active in-class participation, (b) positive peer support, (c) self-empowerment through self-management, and (d) positive reinforcement from teachers/parents.

A mixed methods pilot study identified culturally relevant pedagogies with data collected at a historically black college in the southeast (Liddell & Talpade, 2014). The expert group of faculty at the historically black college recommended an integration of the "intuitive" and "social" characteristics which are familiar to the students. For example, based on shared experiences, some of the recommendations were that the academic activities should be: (a) Social/Affective--include strategies that are people-oriented; permit students to work in pairs and/or groups, (b) Harmonious--use strategies that stress interdependence and harmonic/communal aspects, (c) Creative--use strategies that appeal to the intuitive, especially where students can use oral expression and rhythms, (d) Nonverbal-- include strategies that incorporate body language, movement, etc., (e) Group work and group presentations--students generally function socially in groups; students must be taught how to transfer this to the academic setting, (f) Creative expressions--include activities such as music, dance, creative writing, and so on. The present study will use a social, harmonious, creative, nonverbal and group activity, that of dance, to facilitate learning and initiate positive psychosocial outcomes.

Physical Activities and Academics

This study uses the framework of successful evidence-based practices related to physical activities and academics. Studies have documented the relationships between physical activities and academics (e.g., Chen, Fox, Ku, & Taun , 2013; Wittberg, Northrup, & Cottrell, 2012). The Centers for Disease Control recognize that health-related factors affect school performance and that academic success is a significant indicator of the well-being of youth as well as adult health risks. The findings indicate that when children engage in physical activities at least for 60 minutes a day, they improve academic performance, including grades and standardized test scores. The Centers for Disease Control and Prevention's (2010) reviewed 43 articles which indicated that the majority of the findings (50.5%) found positive associations between physical activity and academic performance. Studies conducted included examining the impact of (a) time spent in physical education and academic achievement (14 studies), (b) recess time and cognitive skills (8 studies), (c) classroom physical activity of 5-20 minutes on academic achievement (9 studies) using the activity to promote learning or just a activity break, (d) extracurricular physical activity conducted outside of the regular school day on academic performance (19 studies). Majority of the studies confirm the association between physical activities and improved

academic achievement. Cain et al. (2015) call for an emphasis on student participation in active dance types to meet the physical activity guidelines of the U.S. Department of Health and Human Services.

The efficacy of dance –also if only observed by participants has indicated positive outcomes on psychological health, specifically lowering depression (Cross, Flores, Butterfield, Blackman, & Lee, 2012; Miller, 2012) and increasing mindfulness (Caldwell, Harrison, Adams, Quin, & Greeson, 2010). Dance has also shown to raise body awareness and that it helps focus the attention on the changes in the bodily processes (Swami & Harris, 2012). Even playing video games involving dance showed that such activities which are enjoyable and engaging produce more intense activity (Lyons, Tate, Ward, Ribisl, Bowling, Kalyanaraman, 2013) as well as learning (McPherson, 2009). Also, research by Dumais (2006) indicates that activities such as dance benefit the less-privileged children who are from families with a low socioeconomic status. Although there are discrepancies in the findings, there is still confirmation from a majority of the studies about the positive affect associated with school and creative activities (Thomas & Arnold, 2011). None of the studies reviewed included a culturally relevant activity and a plan for infusing these activities to specifically improve STEM achievement and psychosocial outcomes among minority undergraduate students. The main objectives of the project were to use African dance to: (a) increase educational outcomes such as the knowledge of neuroscience and a new dialect, (b) engage them in a culturally relevant activity and explore the meaning of African dance to the participants, (c) empower African American undergraduates psychosocially, in terms of self-efficacy and racial identity, (d) assess and improve attitudes towards minority-owned businesses, and in the long run reduce disparities in career choices. The specific target population for this project included undergraduate students, the majority of whom are African American (AA) students at our historically black university, in south Fulton county of the state of Georgia. A project of this nature has not been previously attempted in this community.

METHOD

Design and Participants

The independent variable in this study was the African dance activity. Participants were undergraduate students who either attended this dance class which met 11 times during the semester for 75 minutes and those who did not participate in this activity. Flyers were posted on campus advertising this free activity. These flyers were also emailed to faculty and students by the office of student activities as well as by individual faculty weekly during the semester. Participant attendance ranged from 7 to 21 students.

Measures

Neuroscience presentation and quiz. A 10-item multiple-choice quiz was administered to the participants, pre and post activity. An example of an item on the quiz is as follows: What is the last section of the motor cortex responsible for motion action planning and coordination of complex movements? A. Putamen B. substantia nigra C. Supplementary cortex D. Striatum. A PowerPoint presentation with 9-slides provided information about the different types of movements and associated regions of the brain.

Oromo quiz. Participants of the dance activity, led by the dance instructor concluded the dance activity each time with the following words: I honor the place within you where the entire

universe resides (Oromo translation --Ani kabaja kaba bakay atni jirtu audunia kana kesa); I honor the place within you where there is truth, where there is peace, where there is love (Oromo translation --Ani kanaja si kaba bakay dugan giru, bakay negeau jiru, bakay jalalan jiru); I honor that place within you where if you are in that place in you and I am in that place in me, then there is only one of us (Oromo translation --Ani kabaja bakay atni jirtu fi bakay ani jiru takiti taey nu lachu takiti dah). The quiz included a multiple choice test with having the participants match the correct Oromo translation with the English words.

Meaning of dance exploration. A set of eight open-ended questions (excluding probes) were used for personal interviews with participants. Example of an open-ended question is as follows: How does participating in African dance impact you and your life?

Racial identity inventory. The Helms and Parham (1990) 44-item scale was administered to participants in an online format. This scale consists of four subscales, with each identifying a stage in racial identity development; (a) pre-encounter (identifying with white culture and rejecting/denying black culture), (b) encounter (rejecting previous identification with white culture and seeking identification with black culture), (c) immersion/emersion (completely identifying with black culture and denigrating white culture), (d) integration/commitment (internalizing black culture, transcending racism, fighting general cultural oppression). Examples of items are: The people I respect most are White (pre-encounter stage); When I am with Black people, I pretend to enjoy the things they enjoy (encounter stage); Black people who have any White people's blood should feel ashamed of it (immersion/emersion stage); I feel excitement and joy in Black surroundings (integration/commitment stage). The response format is on a five-point scale with 5 = Highly characteristic of me, 1 = Not at all characteristic of me. Parham and Helms (1981) have reported the following internal consistency reliability coefficients for the four subscales: Pre-encounter = 0.76, Encounter = 0.51, Immersion/Emersion = 0.69, and Integration/Commitment = 0.80.

Self-efficacy scale. The 10-item scale was administered to participants. The response format was on a 4-point scale with 1 = Not at all true, 2 = Hardly true, 3 = Moderately true, 4 = Exactly true. The scores thus range from 0-30. An example of an item on the scale is as follows: It is easy for me to stick to my aims and accomplish my goals. In samples from 23 nations, Cronbach's alphas ranged from 0.76 to 0.90, with the majority in the high 0.80s (Jerusalem & Schwarzer, 1992).

Attitudes towards black businesses. Participants responded to six multiple-choice questions regarding attitudes towards patronizing black-owned businesses. An example of a question is as follows: Describe the type of black-owned business you buy/promote/use (check more than one):___clothing___beauty products___hair___food___auto services___legal services___academic___other. If other please describe the services _____.

PROCEDURE

An African dance instructor was recruited to teach the class once a week for 75 minutes for 11 weeks. After obtaining consent from the institutional review board, flyers about the activity were posted on the university campus. These flyers were also emailed to faculty and students. Some faculty awarded extra credit for student participation in the activity and the assessments as well. Participant sign-up sheets recorded the names and contact information of the participants. For assessment purposes, the participants were requested to (1) answer the questionnaires in an online survey format, and (2) agree to be interviewed by student researchers. The online survey links were sent to the dance participants via email. The control group data was

also collected in an online survey format, and faculty awarded extra credit for participating in the survey. The online survey links were posted by some participating faculty under announcements of their CANVAS course. After the data was collected, student researchers coded the data or downloaded the data from Qualtrics as an SPSS file and analyses were conducted. The pre-test data were collected after 3 weeks of dance class initiation, and post-test after 11 weeks, when the dance class concluded.

RESULTS

Neuroscience of Dance

Research question. Does engaging in African dance facilitate the learning of areas of the brain which are active when dancing?

Findings. The data collection method included a 10-item pretest (conducted in Week 5) and posttest (conducted in Week 10) on various areas of the brain active during a dance and its functions. The pretest was administered after the optimal dance class site was confirmed and attendance stabilized. Results indicated that there was an average of 20 percent correct answers on the pretest which increased to 70 percent on the post-test. The expectations were thus confirmed.

Oromo Language Learning.

Research question. Does engaging in African dance facilitate the learning of phrases in Oromo?

Findings. The data collection method included surveying students who attended the dance class, where they had to translate an English phrase into an Oromo phrase. The sample size was 11, and out of those 11 students, ten students remembered the correct phrase. Participants were requested not to guess the response, and those who got the right answer had attended four or more African dance classes. None of the students had prior knowledge of Oromo, a dialect spoken by approximately 33.8% of the people in Ethiopia (Simons & Fennig, 2017). Thus, before the teaching of the language, none of the participants were knowledgeable of the Oromo translation.

Meaning of African Dance

Research questions. What is the meaning of African dance to black students? What feelings are associated with engagement in this activity?

Findings. The data collection method included 15 oral recorded interviews with students who consistently participated in the dance class. Results were coded and the words associated with the dance reported. Results are depicted via a word cloud (see Figure 1 in Appendix A). The findings indicated that most students associated positive words with participating in the African Dance.

Racial Identity and Self-efficacy

Research question. Does participation in African dance have a positive impact on racial identity and self-efficacy?

Findings. Undergraduate students responded to the two scales via an online survey. Responses were collected from February to May. Data from a total of 36 participants, included those who engaged in the African dance activity (experimental group, n = 19) and those who did

not (control group, n = 17). Data were analyzed with an independent groups t-test (see Table 1 in Appendix B). The means and standard deviations are depicted in Table 2 (see Appendix C).

Assumptions for conducting the independent group *t-t*est were tested. The descriptive statistics revealed that the assumption for equal variances among the groups was not violated. The descriptive statistics of the experimental versus the control group are depicted in Table 2 (Appendix C). Results indicated a significantly higher level of self-efficacy among the dance participants and a significantly higher acknowledgment of changing their lifestyle to that of their beliefs of their race and recognizing the importance of being black; compared to those students who did not engage in the dance activity.

Attitudes toward Black-Owned Businesses

Research question. What is the impact of participation in African dance on attitudes towards black-owned businesses?

Findings Responses of students who participated in the African dance versus students who did not were compared. Results of a chi-square analyses revealed significant differences in the responses to the type of 'academic' black-owned business you buy/promote/use as a function of participation. Significantly more African dance participants promoted, used academic related businesses (n = 22) compared to students who did not (n = 8); χ^2 (1, N = 30) = 6.53, p = .011.

A between-groups t-test between the participants (n = 38) and students (n = 37) indicated a significant difference in the response to the following item; What are your overall experiences with black owned businesses? with 1 = Not at all satisfied; 5 = Extremely satisfied. Participants reported significantly more satisfactory experiences (M = 2.29, SD = .93) versus the students who did not participate in the dance (M = 1.84, SD = .73) who reported significantly less satisfactory experiences; t (73) = -2.34, p = .022.

DISCUSSION

This 'sankofa' inspired project was successful in attaining its objectives. By reaching back into the glorious African past and using the energy and positivity of dance, this pilot study provides evidence of its positive preliminary impact as a teaching tool, enhancement of self-efficacy, positive feelings related to the activity, investment in and experiences with black businesses, for students at a historically black university. Results of this study thus show that dance can be used as a pedagogical tool as evidenced from the knowledge increments related to neuroscience and learning a new language –Oromo. Use of this culturally relevant activity—African dance also revealed significant improvements in attitudes towards the academic institution as well as self-efficacy and items on the immersion/emersion subscale of racial identity. The impact of dance can be explained by the engagement in the activity itself, and Englund and Sandstrom (2015) describe dance as a new subject which is a product of one's body, and the dancer experiences a 'being in the dance' where movement is the form of an expression beyond verbalizations. The impact of this culturally relevant pedagogical tool is just a gateway into the possibilities. Ashley (2014) guides future directions thus: "…the learning experience should be recognised as only providing a starting point from which the teachers could continue to refine their own pedagogy … (p.267)."

The results of this study are supported by other researchers. The efficacy of African dance has been documented in a few studies, for example, Vinesett, Price, and Wilson (2015) document the results of their qualitative inquiry indicating a positive impact on biomedical states

of their participants after engaging in a dance to a Congolese rhythm Zebola. *Moving in the spirit* (MITS) was founded in Atlanta, Georgia, in 1996 by Dana Lupton and Leah Mann, to create enrichment opportunities for youth. MITS utilized dance movement to teach youth "…how to convey emotion, manage peer pressure, resolve interpersonal conflict, problem-solve, embrace academic excellence, and adopt prosocial life skills" (Rodgers & Furcron, 2016, p.6). This quasi-experimental study documented the impact of dance on reducing risky behaviors and increasing life skills among inner-city high-risk youth (Rodgers & Furcron, 2016). The efficacy of arts-based instruction which included dance, on at-risk students' behavior, motivation, and academic achievement has been documented in southern California as well (Li, Kenzy, Underwood, & Severson, 2015; Dee & Penner, 2017). Conversely, Amado, Villar, Sanchez-Miguel, Leo, and Garcia-Calvo (2014) conducted a quasi-experiment which included comparing the psychosocial impact of a traditional dance instructional technique (which focuses on repetition of movement) with that of a creative enquiry method (where participants could select the level of challenge in their skills). Findings indicated a negative impact of dance classes across 12 sessions in the context of a school across both types of instructional methods. Gender differences, however, were noted, whereby males showed an increase in autonomy as well as competence in the creative inquiry instructional group. These results are noteworthy especially in the context of an HBCU which has constant challenges related to black male retention rates.

The results of this pilot study are heartening to the scholarship of teaching and learning. However, some limitations and assumptions are acknowledged. One main limitation is the limited number of participants who consistently participated in this dance and the duration of this pilot study. Challenges related to identifying a time and a site that were suitable for most students after initiation of the class restricted the number of participants. Also, the funding paid for only one session per week, which further constrained access to the activity. However, once the site and time were identified, student researchers were able to solicit participants for their research and the associated dance activity. It is hoped that the university will embrace this dance activity as a part of its physical education curriculum option. An assumption inherent for this study is that the cultural historical activity theory explains the findings of this study. This assumption is validated by the results of the study, which include the qualitative exploration which indicated that participants mainly associated positive feelings with this dance activity and the quantitative results revealing a significant impact on psychosocial and educational outcomes.

By reaching back and drawing on the activities associated with success and glory, dance can serve as an innovative pedagogical tool. African dance is also recognized as a form of expression that helped to empower oppressed people (Gittens, 2012). Themes emerging from the words of teachers of color, emphasize that our concerns as scholars, teacher-educators, should be focused on our understanding of self, building community and collaboration among critical pedagogues, and navigating theory and practice (Borrero, Flores, de la Cruz,2016, p.37). Future investigations would be able to serve the community by using this culturally relevant pedagogy to teach STEM as well as improve physical health!

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APPENDIX A

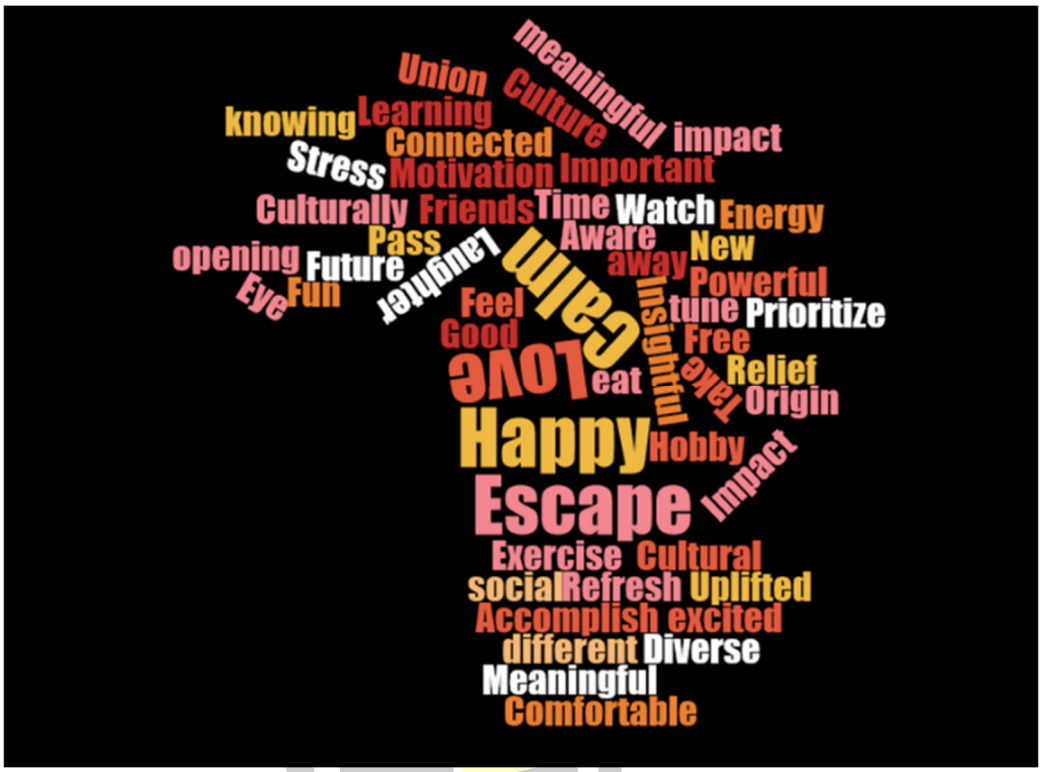

Figure 1. Words associated with participation in African dance. This figure illustrates the words reported by participants with the font size of the words depicting their frequency.

APPENDIX B

Table 1

Impact of African dance on Racial Identity and Self-Efficacy scale items (Independent groups t-test results)

Scale Item	*t*	df	*p*-value
[a]When I am confronted with a problem, I can usually find several solutions.	-2.42	33	.021
[a]I can remain calm when facing difficulties because I can rely on my coping abilities.	-2.67	34	.011
[a]I can solve most problems of I invest to necessary effort.	-2.45	34	.020
[a]Thanks to my resourcefulness, I know how to handle unforeseen situations.	-2.02	34	.051
[a]I am confident that I could deal efficiently with unexpected events.	-2.79	33	.009
[a]I can always manage to solve difficult problems if I try hard enough.	-2.53	34	.016
[b]I have changed my style of life to fit my beliefs about Black people.	-2.11	33	.043
[b]The most important thing about me is that I am Black.	-1.93	33	.061

Note. [a]1 = Not at all true 2 = Hardly true 3 = Moderately true 4 = Exactly true. Items are from Schwarzer & Jerusalem's (1995) General self-efficacy scale.

[b] 1-Not at all characteristic of me, 2-Somewhat characteristic of me, 3-Frequently characteristic of me, 4-Very characteristic of me, 5-Highly characteristic of me; from Helms & Parham's (1990) Black Identity Development Scale.

APPENDIX C

Table 2

Means and Standard Deviations of Racial Identity and Self-Esteem scale items (Experimental versus Control group)

Scale Item	Experimental			Control		
	n	Mean	SD	*n*	Mean	SD
[a]When I am confronted with a problem, I can usually find several solutions.	19	3.63	.50	17	3.24	.46
[a]I can remain calm when facing difficulties because I can rely on my coping abilities.	19	3.42	.69	17	2.88	.49
[a]I can solve most problems of I invest to necessary effort.	19	3.53	.61	17	3.12	.33
[a]Thanks to my resourcefulness, I know how to handle unforeseen situations.	19	3.53	.69	17	3.12	.49
[a]I am confident that I could deal efficiently with unexpected events.	19	3.44	.51	17	2.94	.56
[a]I can always manage to solve difficult problems if I try hard enough.	19	3.63	.50	17	3.24	.44
[b]I have changed my style of life to fit my beliefs about Black people.	19	2.42	1.43	16	1.50	1.10
[b]The most important thing about me is that I am Black.	19	3.11	1.56	16	2.19	1.17

Note. [a]1 = Not at all true 2 = Hardly true 3 = Moderately true 4 = Exactly true. Items are from Schwarzer & Jerusalem's (1995) Self-efficacy scale.

[b] 1-Not at all characteristic of me, 2-Somewhat characteristic of me, 3-Frequently characteristic of me, 4-Very characteristic of me, 5-Highly characteristic of me; from Helms & Parham, (1990) Black Identity Development Scale.