

An Occupation-Based Framework for Changing Human Occupational Behavior to Address Critical Global Issues

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Abstract

The purpose of this study was to investigate the effectiveness of the Modified Instrumentalism in Occupational Therapy (MIOT) in facilitating change in occupational choices and performance patterns to help address global issues of concern to humanity. Such issues include poverty, diseases, environmental destruction and climate change, overpopulation, corruption and institutional dysfunction. The MIOT is an occupation-based framework for individual empowerment which is based on the pragmatic notion that the mind (and ideas or intellectual activities of the mind, including scientific investigation) is an instrument to help humans shape the environment to ensure that it is suitable for their survival. The investigation was a mixed method embedded multiple-case study with an experimental-type pretest-posttest and naturalistic-type phenomenological designs. Three graduate occupational therapy students from a mid-western university in the USA participated in the study. Our findings indicated that participants' occupational choices and performance patterns changed after intervention guided using MIOT guidelines so that they engaged more frequently in occupations that were likely to impact global issues positively. We concluded that the MIOT was a potentially useful tool that occupational therapists and scientists could use to guide meaningful occupation-based interventions to help ameliorate global issues of concern.

Key words: MIOT, Occupation-based framework, individual empowerment, occupational choices, occupational performance patterns, change, global issues, occupational therapists, occupational scientists.

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Introduction

Recent media coverage has made the public increasingly aware of the problems of global warming and subsequent climate change (Kluger, 2006). Due to concerns over the potential negative consequences of climate change to all living things on earth, scholars have started exploring ways of countering the problem of global warming. Much of that investigation has focused on ways of reducing emission of green house gases that are postulated to be the major drivers of the problem (Daynes & Sussman, 2005; Parker, Rowlands, & Scott, 2003; Vaish, 2007).

In this paper, we adopt Ikiugu's (2008) argument that: 1) Global warming is not an isolated problem. It is related to other issues such as poverty, diseases, material inequalities within and between nations, corruption and consequent government and other institutional dysfunctions, and population growth among others. Therefore, to address the problem of climate change effectively, all the above listed issues have to be resolved as a matter of urgency. 2) The occupations in which humans engage significantly impact all the above problems. Therefore, it is important to explore

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how change in human occupational choices and performance patterns can be facilitated in order to exert a positive influence on the issues. Such investigation could result in important knowledge that can be used by occupational therapists and scientists to contribute to the amelioration of the global issues of concern.

Ikiugu (2008, 2011) proposed an occupation-based conceptual framework, Modified Instrumentalism in Occupational Therapy (MIOT), which could be used to empower individuals to change their occupational choices and performance patterns so as to impact the global concerns positively. The purpose of our study was to investigate the effectiveness of the framework as a guide for intervention to facilitate change in occupational choices and performance patterns in a sample of occupational therapy graduate students so that their performance could be more consistent with a positive impact on the global issues. The research question guiding the study was: How effective was MIOT (an occupation-based framework for individual empowerment) in facilitating occupational performance change in three students from a mid-western university in the United States of America (USA) so that their performance patterns had a positive impact on the identified global issues of concern?

Literature Review

In recent years, occupational scientists have begun exploring the possibility of contributing to the solution of wider issues of concern to humanity beyond traditional clinical settings where occupational therapists typically work. Townsend (1997) argued that there was a need for occupational scientists to become involved in endeavors aimed at effecting personal and social transformation. Similarly, Wicks (2005) proposed that occupational scientists had a mandate to facilitate realization of occupational potential not only for individuals but also for communities. Further, Wilcock (2007) suggested that occupational therapists could contribute to preservation of ecological well-being by using occupations as a means of improving the environment and ultimately the human condition.

A review of literature revealed a scarcity of scholarship specifically investigating methods of assisting individuals in communities to consciously alter their occupational choices and performance patterns in order to impact global issues positively. Among those who have recently explored this issue are Hudson & Aoyama (2008) who discussed ways in which occupational therapists could contribute meaningfully to resolution of the current ecological crisis occasioned by environmental degradation, global warming, and climate change. They argued that such approaches could include occupational therapists and scientists enhancing their understanding of: human agency (why and how humans choose and participate in occupations in the midst of ecological and social stress); how to help conserve both occupations and biodiversity for the benefit of both humanity and nature; and how people could attain human-ecological balance through informed occupational choices.

Hudson & Aoyama (2009) further investigated foraging occupations of hunters/gatherers in hope of shedding light on how occupational therapists could plan interventions for indigenous peoples. They argued that understanding hunting/gathering, which is an "occupation without exploitation" (p. 50), could help occupational therapists understand how they may design occupation-based programs that reduce inequalities and occupational injustices that have over time resulted from industrial capitalism. They concluded from their analysis which was based on behavioral-ecology methodology that occupational therapists could develop interventions based on foraging activities for hunter-gatherer indigenous populations in the world. Such interventions would exemplify the values of occupational therapy such as occupational diversification and balance, social equality, and occupational justice while keeping in mind changing social and economic contexts. The work of these two scholars could be seen as a starting point for exploration of ways in which occupational therapists and scientists can learn from occupational history of indigenous peoples and use that knowledge to develop strategies to

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establish ecologically sustainable occupational endeavors, and to contribute to resolution of pressing global issues in general.

Ikiugu (2008) extensively reviewed interdisciplinary literature (from political science; economics, and environmental science) and developed a conceptual model (see Figure 1) illustrating the argument that: 1) the major global issues that we face today (material inequalities, global warming, diseases, poverty, institutional dysfunctions, and population growth) were all inter-related and needed to be addressed contemporaneously; and 2) all these issues were impacted positively or negatively by human occupational choices and performance patterns. He posited that alteration of the way individuals chose and performed occupations could be one

way of addressing the issues. Ikiugu's model will be explained briefly since it is the one that was tested in this study.

As can be seen in Figure 1, the occupational human being is conceptualized as a system resembling a revolving wheel. At the center of the wheel is the human agent engaged in a continuously changing stream of daily occupations in the categories of productivity, self-maintenance, leisure, war/conflicts, and sexual/reproductive activities. Performance of these occupations impacts global issues (material inequalities, environmental destruction/global warming/climate change, corruption/institutional dysfunctions, diseases, poverty, and population growth/overpopulation).

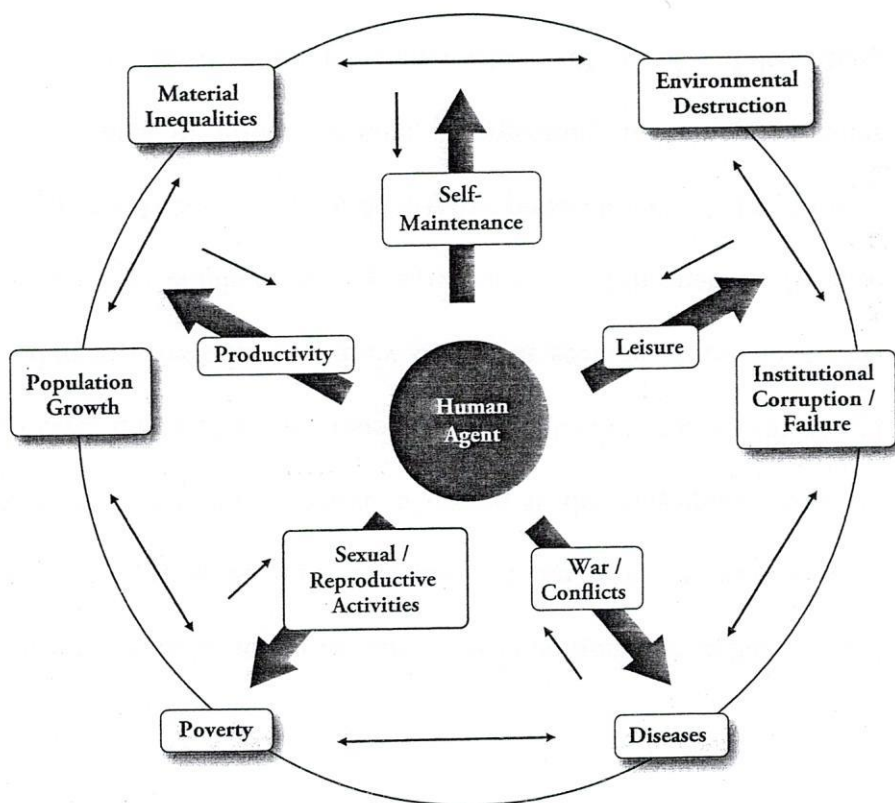


Figure 1. Dynamic interactions among human occupational choices and performance patterns and pertinent global issues of concern. Adapted from, "The United States occupational therapists' occupational therapy assistants' and occupational scientists' perception of the impact of occupational performance on pertinent global issues (p. 6)" by M. N. Ikiugu, L. M. Anderson, and W. Anderson, 2009. Unpublished Manuscript, the University of South Dakota, Vermillion, South Dakota.

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The issues in turn are interconnected as indicated by two-headed arrows. For example, environmental destruction can lead to exacerbation of global warming as well as diseases. Diseases can amplify material inequalities because the consequences of illness are most serious among the vulnerable populations, such as the poor. By being sick and unable to work, poor people become even poorer and the poor-rich gap widens further. Corruption is another issue that affects efficiency of government and other social institutions that are supposed to protect the environment and regulate distribution of wealth. When such institutions are ridden with corruption, human greed is allowed to run rampant leading to dangerous environmental destruction and also further widening of the rich-poor schism because of redistribution of wealth in favor of those who are able to pay bribes. This situation could lead to an increase in prevalence of diseases because of destruction of the environment for economic gain and increase in poverty and therefore vulnerability to ill health.

War and social conflicts are other issues that affect the environment, human health, and prevalence of poverty. For example, bombing (which is part of modern warfare), destroys natural and built environments, and kills young people who are the most economically productive. Economic well-being of entire societies is affected negatively. Families are displaced impoverishing them and increasing poverty in society even further. Increased poverty leads to an increase in all associated problems such as diseases, inability to protect the environment, and so on. Finally, rapid population growth leads to environmental degradation as the natural environment is destroyed by humans searching for and extracting resources to support increasing numbers of people. Overpopulation is also associated with poverty, increased incidence of diseases, and war/social conflicts as communities/nations fight over increasingly scarce resources.

Apart from being inter-related, all the above discussed issues are influenced by and in turn impact human occupational performance and the human agent's state of well-being (arrows pointing to the center). For example, poverty

limits accessibility to occupations that individuals need in order to realize their potential and attain occupational balance. Material inequalities make the condition of poverty worse limiting occupational accessibility further. Furthermore, as already mentioned, poverty is related to prevalence and incidence of diseases. Further, diseases constrain occupational participation (for example, a person with asthma may limit participation in outdoor occupations) and occupations on the other hand affect individual health and well-being. Also, participation in occupations that Kronenberg and Pollard (2005) referred to as Political Activities of Daily Living (pADLs) may and often affects policies enacted by governments and other institutions (e.g., by electing officials into office). Such policies can lead to improvement or worsening of the problems of poverty, diseases, material inequalities, the possibility of going to war with other nations, and so on. Sex/reproductive occupations can also lead to unplanned reproduction and overpopulation leading to undue pressure on the environment, increased poverty, and war/social conflicts.

It follows then that the occupations that humans choose and in which they participate on a day-to-day basis impact all the global issues of concern either positively or negatively. It could even be argued that most of the problems that trouble humanity are at some level a result of human occupational choices and performance patterns. This means that a professional/scientific discipline that understands human occupation is in a unique position to contribute meaningfully to the resolution of major global issues. Based on the above argument, Ikiugu (2008, 2011) proposed a framework that can be used to guide occupational therapists'/scientists' endeavors to contribute to improvement of the above discussed issues using occupation-based interventions.

The Modified Instrumentalism in Occupational Therapy (MIOT): An Occupation-Based Framework for Individual Empowerment

The MIOT, which was proposed by Ikiugu (2008, 2011) as an occupation-based framework for

individual empowerment to enable one to alter his/her occupational choices and performance patterns for a positive impact on global issues was a modification of the Instrumentalism in Occupational Therapy (IOT) theoretical conceptual practice model which was developed earlier based on the philosophy of pragmatism and the chaos/complexity theory (Ikiugu, 2007, 2004a, 2004b, 2004c). The IOT model was based on the philosophy of pragmatism, which was originally formulated by Peirce (1955) based on the basic premise that belief is a rule for action. By "rule for action", Peirce meant that actions of human beings are always an attempt to validate their beliefs.

The idea of belief as a rule for action was further elaborated by Dewey (1981) in the construct of instrumentalism. Instrumentalism is the notion that the human mind is a tool that human beings use to shape the environment to make it conducive to human survival. Since occupations are actions by which humans shape the environment, instrumentalism seemed to be a relevant construct for occupational therapists. People can be taught to establish belief systems that are consistent with choosing and engaging in occupations that help them adapt successfully and survive (both physically and psychologically) as individuals and as communities. Ikiugu (2004a, 2004b, 2004c) borrowed the construct of instrumentalism and used it as the cornerstone of a theoretical conceptual practice model that could be used by occupational therapists in their clinical practice. Further, since the theory of evolution (Darwin, 1985) was central to development of pragmatism, Ikiugu adopted chaos/dynamical systems theory (which he considered to be a superior theory to evolutionism in explaining the process of adaptation as conceptualized in occupational therapy) as the theoretical framework for the model. As mentioned earlier, the IOT model was later modified to form MIOT for use in guiding intervention to help individuals change their occupational choices and performance patterns individually and collectively for a positive impact on the global issues discussed earlier.

Outline of the MIOT model

The MIOT model was operationalized for application by clearly defining guidelines for evaluation and intervention. Three assessments were developed as part of the model's evaluation guidelines: The Daily Occupational Inventory (DOI); Modified Assessment and Intervention Instrument for Instrumentalism in Occupational Therapy (MAIIOT); and the Occupational Performance Calculation Guide (OPCG).

The DOI is used to elicit occupations in which an individual engages over a specified period of time. In terms of chaos theory, this is an attempt to have a glimpse of the individual's occupational life trajectory (Bassingthwaight, Liebovich, & West, 1994; Ikiugu & Rosso, 2005), so that it can be assessed to determine whether it is adaptive or maladaptive in terms of its consistency with a desired legacy of a positive impact on global issues. The MAIIOT is used to guide an individual in: establishing a mission statement whose achievement would lead to realization of a desired legacy pertaining to global issues; identifying occupations whose adequate performance would lead to achievement of the mission; and self-rating of the extent to which the occupations are performed with desired adequacy and satisfaction. In terms of chaos theory, this process can be seen as introduction of perturbation (noise) into the human system to create dissonance between current and desired state of functioning. It is hypothesized that this dissonance will push the system towards self-organization at a more adaptive state of functioning. The OPCG is used to compute quantitative occupational performance (OP) scores based on occupations entered in the DOIs and their relevance to the mission established during the MAIIOT assessment. The quantitative scores are used as indicators of occupational performance changes after intervention. Analysis of the scores can also reveal occupational performance patterns characterizing the occupational life trajectory of an individual. Administration and scoring of the three assessments will be discussed in the methods section.

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Guidelines for intervention consist of three phases (Ikiugu, 2008, 2011):

Phase I – Belief establishment: This phase consists of belief establishment and self-assessment. The DOI/OPCG and MAIIIOT are administered (details of administration procedures will be discussed in the methods section). Part of the assessment is establishment of a mission statement (MAIIIOT section I) which constitutes belief establishment. Two occupations are identified for each of the four parts of the mission statement (family, socialization, work/school, and community participation) whose adequate performance would lead to realization of the stated mission. The individual can choose up to 8 occupations. He/she then rates his/her performance of each of the identified occupations. The rating criteria are described further in the methods section.

Phase II – Action: During this phase, occupational performance goals are established by the individual in collaboration with the occupational therapist/scientist to enhance performance of occupations whose satisfaction with performance is rated less than optimum. The individual commits to performance of the occupations regularly in order to increase competency. At this time, the individual also educates him/herself about global issues and what he/she can do to impact those issues positively. Some of this self-education can be done in group interventions planned by the occupational therapist/scientist.

Phase III – Consequence Appraisal: During this phase, all the assessments described above are administered again. Based on the scores, the individual, in collaboration with the occupational therapist/scientist, decides whether the goals have been achieved in which case intervention is terminated. If the goals have not been achieved or if new goals are identified, beliefs, actions, or both beliefs and actions can be modified and the intervention

process enters the belief establishment phase and begins all over again. The purpose of our study was to investigate the effectiveness of the above described intervention process in producing targeted outcomes.

Materials and Methods

This was a mixed methods embedded multiple case-study with experimental-type pretest-posttest and naturalistic-type phenomenological designs. The case study structure was embedded because each participant was considered to be an independent case (DePoy & Gitlin, 2011). Specifically, a modified “ABA” design was used where: A= the baseline period in which participants’ occupational performance scores were generated using the DOI/OPCG; B=the intervention phase in which participants discussed global issues and how they could impact those issues positively and Field Notes of the discussions were documented; and A= post-intervention phase in which occupational performance scores were generated again after intervention using the OPCG guidelines. The phenomenological data were used to corroborate and elaborate on quantitative findings. Combining quantitative and qualitative methods allowed the researchers to gain multiple perspectives in the case study for a better understanding of the phenomenon of interest (Mortenson & Oliffe, 2009).

Research Participants

Three graduate occupational therapy students from a mid-western university in the USA participated in the investigation. They were all second year students, Caucasians, and their ages ranged between 23 and 25 years. There were two women and one man.

Research Instruments

The three instruments introduced earlier (MAIIIOT, DOI, OPCG) were used to gather data.

The Modified Assessment and Intervention Instrument for Instrumentalism in Occupational Therapy (MAIIOT)

The MAIIOT is used to guide individuals in writing mission statements defining their desired legacy in contributing to amelioration of pertinent global issues, identifying occupations whose adequate performance would lead to realization of the stated mission, and assessment of perceived performance of each of the identified occupations. The mission statement, which is established during part I of the assessment consists of four sections: (1) Family relationships, (2) Socialization/Friends, (3) Work, and (4) Participation in the community. Work is conceptualized to include paid activities, home management, taking care of other people, volunteer activities, being a student, and so on. In section II of the assessment, the individual identifies two occupations in each of the four sections of the mission statement in which adequate engagement would lead to achievement of the stated mission. In section III, the individual rates him/herself on 4-point Likert-type responses in four scales: perceived frequency of engagement in each of the identified occupations; adequacy of engagement in the occupation; satisfaction with performance; and belief in the ability to participate in the occupation.

Each scale is operationalized independently. For example, scores for the adequacy scale range from "1= I am not able to engage in the occupation" to "4 = I engage in the occupation, am able to complete it, and the outcome is always adequate". The satisfaction scores range from "1 = I am disappointed with my engagement in the occupation" to "4 = I am happy with my engagement in the occupation as it is" (Ikiugu, 2008, pp. 200-201). In Section IV, the self ratings are aggregated and divided by the number of listed occupations to provide a single index ranging between 1 and 4 for each of the four scales.

In a pilot study by Ikiugu, Anderson, and Manas (2008), internal consistency reliabilities of the AIIIOT, on which the MAIIOT was based, ranged from $\alpha=.429$ (unacceptable)

to $\alpha =.980$ (excellent) for the four scales (see George & Mallery, 2003 for guidelines on how to interpret Cronbach's alphas). Belief scale had the best internal consistency reliabilities ($\alpha =.93$ at test and .98 at retest, both of them excellent). The adequacy and belief scores were found to be good predictors of: a) the test and retest perceived frequency of engagement in occupations as assessed on the AIIIOT frequency scale; and b) the OP scores computed on the OPCG. This indicated that the IOT had predictive validity. The above findings were confirmed in a later study with a larger sample (Ikiugu, in press).

The Daily Occupational Inventory (DOI)

The DOI requires participants to document occupations in which they are engaged every hour from 6:00 AM through midnight for a specified period of time. The occupational therapist/scientist then sorts the occupations entered in the DOI into seven categories (AOTA, 2008): activities of daily living, instrumental activities of daily living, education, work, recreation, play, and social participation. The frequency of engagement in each occupation is tallied according to the number of entries in the DOI. Finally, a list of occupations performed over the specified period is generated for presentation to the participant.

Occupational Performance Calculation Guide (OPCG)

The list generated from the DOIs is presented to the participant who ranks the occupations according to their importance in helping him/her achieve the stated mission in life established during the MAIIOT assessment. Based on the top five ranked occupations the occupational therapist/scientist computes occupational performance (OP) scores using the OPCG formula which was developed by Ikiugu and Rosso (2005): $P_t = \sum(P_i) = \sum(F \times PI)$, where P_t = the total performance score, P_i = the performance score associated with each occupation, F = the frequency of participation in each occupation, and PI = the performance index assigned to each occupation according to rank

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in importance in helping the participant achieve the stated mission in life [PI = 5 for occupation ranked number 1, 4 for number 2, 3 for number 3, 2 for number 4 and 1 for number 5]. Ikiugu and Ciaravino (2006) found that the OPCG had convergent validity when compared with the Canadian Occupational Performance Measure (COPM) [$r(13)=0.79$, $P<0.02$].

Procedures

Participant recruitment began during the first week of September 2008, after the study protocol had been approved by the University of South Dakota (USD) Institutional Review Board (IRB). The investigators contacted occupational therapy and physical therapy graduate students by email inviting them to volunteer for the study. Attached to the email was the informed consent form, in which the role of the participants in the study was explained. Three students responded to the email. During the first meeting with the volunteers, the purpose of the study was explained verbally and signed informed consents were obtained. The DOIs were distributed with instructions to enter daily occupations for four consecutive days and return the completed documents to the researchers. Each participant was assigned a numerical identity to ensure confidentiality. During the second meeting the following week, MAIIOT assessment was administered as explained earlier. Each participant was given a list of occupations in which he/she had participated in the four days during the DOI assessment the previous week and asked to rank the occupations according to their importance in helping him/her achieve the mission statement. Daily and total OP scores were calculated.

Intervention sessions (meetings 3 to 7) were conducted weekly for one to one and half hours per session. Each week, the participants were assigned one chapter from the book, *Occupational science in the service of Gaia: An essay describing a possible contribution of occupational scientists to the solution of prevailing global problems* (Ikiugu, 2008). During each meeting, the assigned chapter for the week was discussed using reflection questions at the end of the chapter as a guide for discussion. In one of the sessions, a newspaper

opinion piece dwelling on one of the pertinent issues of the week was discussed in addition to the assigned chapter. This period constituted the self-education and self-exploration phase of intervention. The co-investigator wrote detailed field-notes during intervention meetings. She documented participants' views, beliefs, and opinions pertaining to the topic of discussion. At the end of the fifth intervention session (7th meeting), the DOIs were distributed again for completion during the subsequent four days (beginning of the posttest).

In the last session (8th meeting) all assessments were administered again as described earlier. During this meeting, a focus group was conducted in which participants discussed their experiences in the research study. The focus group discussion was guided using the following questions: 1) How did your participation in this research study over the last eight weeks affect your life? 2) To what extent do you feel that you need to find out more about global issues? 3) What general comments do you have about your experience as a participant in this research project? The focus group discussion was audio-recorded and transcribed verbatim.

Data analysis

The two standard deviation (2SD) band method was used to analyze quantitative (daily OP scores) data. This is a statistical method that was developed by Bloom and Fisher to determine the significance of changes in trend after intervention in case study research (Nourbakhsh & Ottenbacher, 1994). It consists of the following procedures: 1) pretest and post-test scores are graphed; 2) the mean (M) of baseline scores (pretest phase) is calculated and an horizontal line representing the mean is drawn through the baseline phase of the graph; 3) the Standard Deviation (SD) of baseline scores is computed and multiplied by two; 4) an horizontal line representing the 2SD score is drawn above or below the mean and extended to the posttest phase of the graph. If two or more post-test data-points lie outside the 2SD line (+2SD or -2SD), it is concluded that significant change has occurred as a result of intervention. This approach makes it possible to draw conclusions about the

effectiveness of an intervention in case study research. In a later publication, Bloom, Fisher and Orme (2003) recommended use of the more conservative three SD band method of analysis. In our study, we used both approaches.

Phenomenological procedures were used to analyze qualitative data (field-notes, and focus group discussion). These procedures included: 1) reading each transcript to get a general overview of the research participant's perspective on the phenomenon of interest and summarizing that overview; immersing ourselves further in data by reading each transcript again line by line, identifying statements indicative of the essences of the phenomenon, and labeling those essences; grouping the essences according to similarities in meaning and labeling the groupings (identifying themes); generating thematic descriptions from the grouped essences; and generating a formal exhaustive description of the phenomenon as expressed by the research participants (Cresswell, 2007; Moustakas, 1994; Speziale & Carpenter, 2003). The findings emerging from this analysis supported the quantitative results.

Results

Effectiveness of the MIOT-Based Interventions in Facilitating Change in Occupational Performance Patterns among Research Participants

The graphed pretest and posttest daily OP scores for the three research participants are shown in figures 2, 3, 4, and 5.

As can be seen in Figures 2, 4 and 5, two or more posttest data points were outside the 2SD band for each of the three participants. However, only two of the three participants had two or more posttest data points outside the 3SD band. Participant G001 identified driving as an occupation that was important for realization of her desired legacy in impacting global issues. Since driving contributes to emission of greenhouse gasses which are postulated to exacerbate the problem of global warming and climate change, the scores associated with the occupation were coded such that high scores indicated a negative impact on global issues and vice-versa. Therefore,

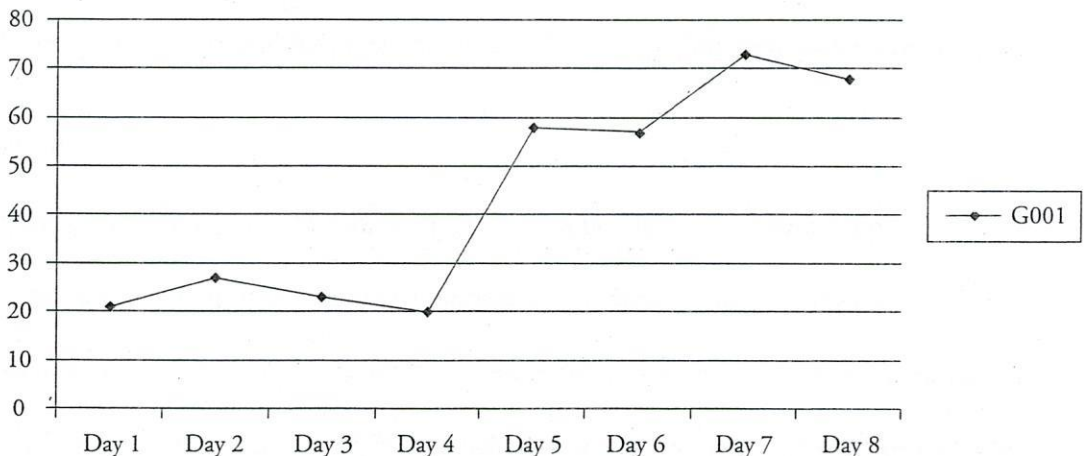


Figure 2: A graph showing participant G001's change in daily occupational performance (OP) score trend after intervention. Days 1, 2, 3, and 4 constitute the pretest phase and days 5, 6, 7, and 8 comprise the posttest phase. Mean (M) of baseline score = 22.75; Standard deviation (SD) of baseline scores $\times 2 = 3.09 \times 2 = 6.18$. The score at $M+2SD = 22.75 + 6.18 = 28.93$. SD of baseline $\times 3 = 3.09 \times 3 = 9.27$. The score at $M+3SD = 22.75 + 9.27 = 32.02$. All four posttest data points were outside the 2SD and 3SD indicating significant change in OP scores for participant G001.

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the scores associated with this occupation were analyzed separately (figure 3). As can be seen in figure 3, both the 2SD and 3SD band methods of analysis indicated that there was no significant change in driving after intervention.

The change in OP score trends indicated in figures 2, 4, and 5 was confirmed by mean MAIIOT scores (see Table 1).

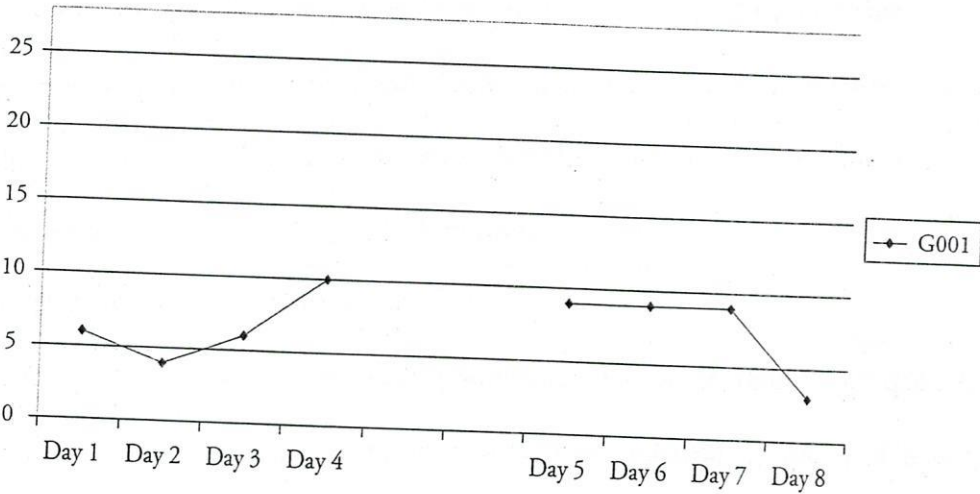


Figure 3. A graph showing participant G001's change in daily occupational performance (OP) score trend associated with driving after intervention. Days 1, 2, 3, and 4 constitute the pretest phase and days 5, 6, 7, and 8 comprise the posttest phase. The mean (M) baseline score = 6.5. The 2SD of the baseline scores = $6.5 \times 2 = 13$. The score at $M+2SD=6.5 + 13 = 19.75$. 3SD of the baseline scores = $6.5 \times 3 = 19.5$. The score at $M+3SD = 19.5 + 6.5 = 26$. No posttest data points were outside the 2SD band indicating that change in posttest OP scores associated with driving was not significant for participant G001.

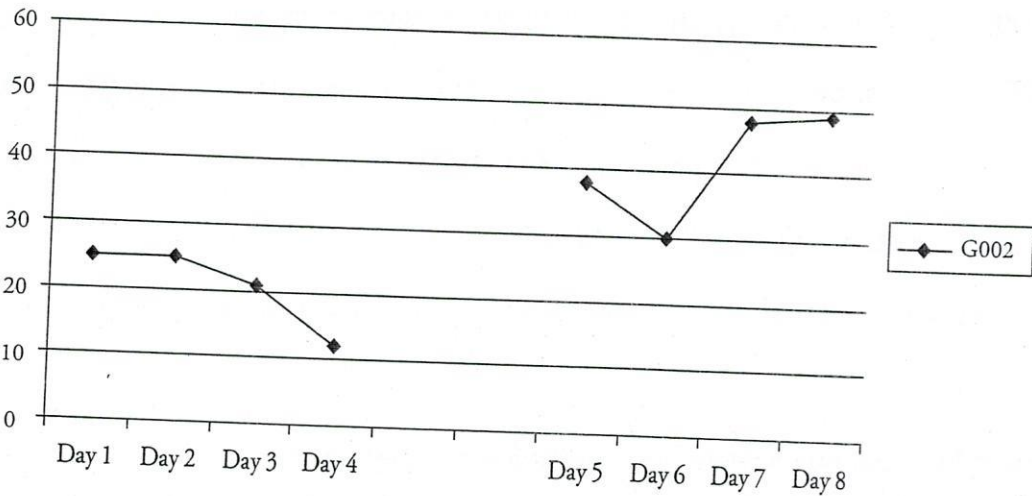


Figure 4. A graph showing participant G002's change in daily occupational performance (OP) score trend after intervention. Days 1, 2, 3, and 4 constitute the pretest phase and days 5, 6, 7, and 8 comprise the posttest phase. Mean (M) pretest OP scores = 20.75. The 2SD of baseline scores = $6.13 \times 2 = 12.26$. The score at $M+2SD=20.75 + 12.26 = 33.01$. The 3SD of baseline scores = $6.13 \times 3 = 18.39$. The score at $M+3SD = 18.39 + 20.75 = 39.14$. Three of 4 data points were outside the 2SD band and 2 of 4 points were outside the 3SD band indicating significant change in OP scores for participant G002 after intervention.

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Table 1: Comparison of Participants Pretest and Posttest MAIIOT Assessment Scores (n=3)

Participant	Scale							
	Frequency		Adequacy		Satisfaction		Belief	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
G001	13(2.17)	23(3.29)	16(2.67)	22(3.14)	14(2.33)	22(3.14)	21(3.5)	26(3.71)
G002	16(2.29)	24(3)	18(2.57)	22(2.75)	15(2.14)	22(2.75)	23(3.29)	30(3.75)
G003	19(3.8)	14(2.8)	17(3.4)	15(3)	17(3.4)	14(2.8)	20(4)	19(3.8)
Mean	16(2.75)	20.33(3.03)	17(2.88)	19.67(2.96)	15.3(2.62)	19.33(2.9)	21.33(3.6)	25(3.75)

Notes: Numbers in parenthesis represent scores after standardization (raw scores are outside the parenthesis). They were obtained by dividing the raw scores by the number of occupations identified by the individual as important for achievement of personal mission in life and therefore for helping achieve a desired legacy (mission statement) pertaining to the global issues of concern during the MAIIOT assessment. The standardized scores could vary only between 1 and 4 (consistent with a 4-point rating scale).

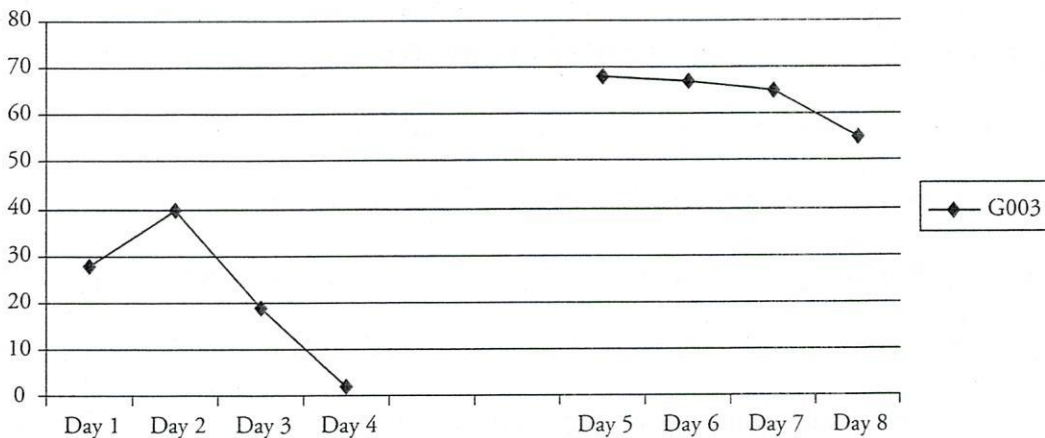


Figure 5. A graph showing participant G003's change in daily occupational performance (OP) score trend after intervention. Days 1, 2, 3, and 4 constitute the pretest phase and days 5, 6, 7, and 8 comprise the posttest phase. The mean (M) pretest performance score = 22.25. The 2SD of baseline scores = $16.00 \times 2 = 32$. The score at $M+2SD = 22.25 + 32 = 54.25$. The 3SD of baseline scores = $16 \times 3 = 48$. The score at $M+3SD = 22.25 + 48 = 70.25$. Three of the 4 posttest data points were outside the 2SD band but no points were outside the 3SD band. This indicated that there was a significant change in G003's OP scores when the 2SD band method of data analysis was used, but the change was not significant when the more conservative 3SD band method was used.

As can be seen in Table 1, the mean MAIIOT frequency, adequacy, satisfaction, and belief scores improved for all the three participants following intervention.

Change in occupational prioritization following intervention

A comparison of occupations identified by participants during pretest as important for

achievement of their personal mission statements with those identified during posttest is shown in table 2.

As can be seen in Table 2, new occupations were identified as important for amelioration of global issues during posttest that were not identified during pretest. For example, during posttest, participant G001 and G002 identified recycling, living within means, and providing

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services to the poor as important occupations to help them achieve their mission statements. Similarly, Participant G003 identified helping others (the poor) as an important occupation during posttest.

Table 2: Comparison of Pretest with Posttest Occupations Identified as Important for helping Participants achieve the Mission Statement established during the MAIIIOT Assessment

Occupation Number	Participant					
	G001		G002		G003	
	<u>Pretest</u>	<u>Posttest</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Pretest</u>	<u>Posttest</u>
1	Talking to family members	Living within means	Family related occupations	Helping family with tasks	Performing the mother role	Being a good parent
2	Socialization	Recycling	Praying for resolution of global issues	Discussing issues with family	Caring for friends	Mentoring sisters
3	Sharing experiences about helping the poor	Exercising	Discussing issues of global concern	Discussing issues with friends	Being a student	Being a faithful friend
4	Working with clients	Eating healthy	Participating in community service projects	Working with others to provide service in community	Recycling	Being involved in the OT profession
5	Participating in Church groups	Fighting for equality and justice for clients	Discussing issues of global concern	Being an example of stewardship	Going to Church	Participating in activities to help others
6	Praying	Providing service to the poor	Providing financial assistance	Discussing issues with professional colleagues	Performing the mother role	
7		Praying for those who are suffering	Providing service in community through Church	Giving financial assistance to Church to serve the poor	Caring for friends	
8				Working with others to help the needy in the community		

Qualitative findings

The phenomenon of interest in this study was the perception by research participants of the impact that their occupational choices and participation patterns had on global issues, and how they could change such patterns in order to influence the issues positively. We were also interested in their perceptions of how participation in interventions guided using MIOT guidelines enabled them to make necessary changes in order to affect the said global issues positively. Some of the indicators of the phenomenon were statements by participants during intervention and focus group discussions of their perception of: the effect of occupational performance on global issues; the need to change occupational participation patterns for the benefit of the earth, humanity, and all living things; and how education based on MIOT guidelines impacted their awareness of global issues of concern, the effect of their occupational performance on those issues, and *changes* they could make in their *occupational lifestyles* in order to contribute towards amelioration of the issues.

Participants' perceptions and opinions as identified in field-note and focus group data analysis

Five findings emerged from analysis of field notes and focus group discussion. The five findings and illustrative exemplars are shown in table 3.

As table 3 clearly indicates, as the students participated in the intervention guided using MIOT guidelines, they seemed to think more about how human beings contributed to global issues of concern. They also became increasingly aware of how education may help facilitate change in occupational performance patterns for the benefit of improving global issues. They felt that participation in the MIOT-based intervention had enhanced their awareness of: a) the effect of their own occupational performance on global issues; and b) how they could change their occupational choices and performance patterns so as to impact the issues positively. There was some skepticism regarding the extent to which human beings could be held responsible for causing the issues.

Table 3: Findings from Field-notes and Focus Group Discussion Data Analysis

Findings	Exemplars
<i>Finding # 1:</i> There was skepticism about the responsibility of human beings in causing global issues. There was also doubt regarding overpopulation being an issue of concern. Some participants even suggested that population growth provided positive rather than negative benefits to humanity. At least one participant doubted the assertion that human beings were responsible of causing significant environmental problems and global warming.	"I can see how it [population growth] contributes to environmental issues. There is also good that come out of people [population growth]" (G002) "Positive outcomes [of population growth] could be new innovations" (G003).
<i>Finding # 2:</i> One participant believed that human beings should be certainly held responsible for the global issues of concern. In any case, all participants agreed that irrespective of whether or not human beings caused the issues, they were responsible for doing something to make them better	"I think we [human beings] contribute [to global issues of concern]" (G003) "Regardless if humans are the cause they can still decrease the effects of global warming" (G001). "Don't necessarily believe humans are huge causes but still believe humans should treat the environment with care" (G002).
<i>Finding # 3:</i> All participants agreed that education is the vehicle for change of human behavior that is necessary in order to address global issues. For example, it can be a powerful way of helping address environmental issues.	"Education has a lot to do with it. I heard one time that education is the ticket out of poverty" (G 001). "Don't believe in giving to poor but [I agree with] more education [of the poor]." "Teach people to use resources effectively or do certain things to contribute to society. Whether decisions of own or circumstance just teach strategies to solve problems" (G 002).

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Findings	Exemplars
<p><i>Finding # 4:</i> All participants expressed their perception that the framework for individual empowerment introduced to them during this study was effective in helping them become more aware of: 1) the effects of their occupational behavior on global issues; and 2) actions they can take individually to impact the issues positively. Examples of this increased awareness included realization: of the need to be less selfish in order to contribute towards solution of global issues; and that dedication and action were prerequisites for solution of global issues.</p>	<p>"It has made me aware of how my daily living impacts global issues" (G001). "It's good. Makes you as an individual responsible and helps you strive towards the goals" (G001). "I think I have a desire to know more of what is going on than I did before" (G002). "I think it made me a lot more aware about topics I didn't know a lot about. It opened my eyes a little bit" (G003). "Think of if you have means to do the activities and what effects they have on environment" (G001). "Just really need to be conscious of our actions" (G001). "Need to look at how things affect us which in return affects others" (G002). "Think about what you do. Adapt activities you already do to be more earth friendly" (G003).</p>
<p><i>Finding # 6:</i> Participants gave recommendations regarding how the framework for individual empowerment could be improved to be more effective in guiding individuals to change their occupational choices and performance patterns for a positive impact on global issues.</p>	<p>"The case study in the back [of the Ikiugu (2008) book] gave me some insight [therefore incorporate more case studies in the intervention]" (G 001). "Bring in more current things [topics for discussion] besides just the book" (G002). "[Recruit] a bigger group for more conversation. Also, bring in more current events" (G 003).</p>

Notes: G001, G002, and G003 are codes assigned to the three research participants and therefore used to identify them in place of their names so as to ensure their confidentiality.

Discussion

Our findings indicated that the trend of changes in occupational choices and performance patterns was in the expected direction. Based on the 2SD band method of data analysis, there was a significant increase in OP scores for all the three participants following intervention. When the 3SD band method was used, the change in post-intervention OP scores was significant for two out of the three participants. Since OP scores are based on frequency of engagement in occupations perceived to be important for achievement of one's mission in life (for our participants, this meant creating a legacy consistent with a positive impact on global issues), it means that the participants engaged more frequently in occupations that were important for amelioration of global issues.

The above trend was confirmed by change in mean MAIIOT scores, which indicated that participants: engaged more frequently in occupations perceived to be important for realization of their missions in life; felt more

adequate in their ability to participate in those occupations; were satisfied with their performance of the occupations; and believed that they could engage in the occupations with desired frequency and adequacy. Since this was a case study and there was no control group, the observed changes could be attributed to maturation or other extraneous variables. However, the quantitative results were corroborated by qualitative findings which revealed that even though there was some skepticism about the extent to which global issues could be attributed to human activities, participants nevertheless felt that humans had a responsibility to do whatever they could to make those issues better.

Participants also indicated that their awareness of the need to educate themselves more about global issues, the relationship between their occupational performance and those issues, and what they could do to contribute to improvement of the issues increased after intervention based on MIOT guidelines. Corroboration of

quantitative and qualitative findings increased our confidence in concluding that intervention based on the MIOT guidelines had an effect on research participants' opinions about global issues and their choice of occupations. Their occupational performance patterns became more consistent with amelioration of global issues of concern. That conclusion suggests that the MIOT model is a potentially useful tool that occupational therapists and scientists can use to help them achieve the goal of contributing to social transformation as envisioned by Townsend (1997) and of empowering people so that they are involved in actions and policy making to enhance sustainable relationships among people and their habits, communities, other living things, and the environment as conceptualized by Wilcock (2006).

Conclusion

In this paper, it was pointed out that global warming and climate change, which are all primary human concerns, are not isolated issues at the current time. Rather, they are interrelated with other global issues such as poverty, material inequalities, diseases, corruption and institutional dysfunctions, and overpopulation. All the above issues have to be addressed contemporaneously if the problems of global warming and climate change are to be confronted effectively. Furthermore, it was argued that all the issues listed above can to a certain extent be attributed to human occupational choices and performance patterns. They can therefore be impacted positively by people altering their occupational choices and performance patterns. The purpose of our study was to test the effectiveness of MIOT (a conceptual framework for individual empowerment) in facilitating change in occupational choices and performance patterns for a positive effect on global issues by three graduate occupational therapy students. Our findings indicated that use of MIOT guidelines in intervention led to change in occupational performance patterns by study participants such that they engaged more in occupations in such a way as to affect

the global issues positively. This suggested that the framework was promising as a tool that occupational therapists and scientists could use to guide interventions to help individuals change their occupational performance for a positive influence on global issues.

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