“I'll Squeeze It In”: Transforming Preservice Classroom Teachers' Perceptions Toward Movement Integration in Schools

Tan Leng Goh a, James C. Hannon a, Maria Newton a, Collin Webster b, Leslie Podlog a & Wanda Pillow a

a University of Utah
b University of South Carolina

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"I’ll Squeeze It In": Transforming Preservice Classroom Teachers’ Perceptions Toward Movement Integration in Schools

Tan Leng Goh  
James C. Hannon  
Maria Newton  
*University of Utah*

Collin Webster  
*University of South Carolina*

Leslie Podlog  
Wanda Pillow  
*University of Utah*

A program titled Physical Education Programming Infusion (PEPI) was incorporated into a required science methods course for preservice classroom teachers (PCTs). Using the transformative learning theory and the social ecological model, the authors examined changes in PCTs’ personal health behaviors and perceived barriers toward movement integration (MI) in schools. Thirty-two PCTs participated in the 30-minute weekly PEPI for one semester. Interviews were conducted with 10 PCTs at the end of the PEPI. The PCTs became more aware of and made changes to their lifestyles through participation in PEPI. Although PCTs perceived the presence of organizational barriers in implementing MI, they consistently believed in the benefits of MI. Helping PCTs to become aware of and make changes to their lifestyles will strengthen their beliefs as prospective agents of change in the health and well-being of their students.

**INTRODUCTION**

Classroom teachers play an important role in providing opportunities for physical activity (PA) and help provide a foundation for health-promoting behavior in students. However, some preservice classroom teachers (PCTs) reported that they are not highly involved in PA themselves and do not fully embrace the message that they play an important role in promoting PA in schools (Cardinal & Cardinal, 2002). Nationwide, teachers implement little to no PA activities,
due in part to the focus on standardized testing and accountability in schools (Parks, Solmon, & Lee, 2007; Sherman, Tran, & Alves, 2010). Movement integration (MI) is one strategy where teachers are able to naturally integrate academic concepts with physically active movements in classroom settings (Parks et al., 2007). This study examines PCTs' perceptions toward MI after being introduced to the concept in a teacher preparatory program.

Physical inactivity is prevalent among adults and children in the United States (National Center for Health Statistics, 2011). From the National Health and Nutrition Examination Survey, it was found that only 42% of children age 6 to 11 and 8% of adolescents obtain the recommended 60 minutes of PA per day (Troiano et al., 2008). With more than 95% of youth in attendance, schools are suitable places to promote PA (Lee, Wechsler, & Balling, 2006). In many schools, physical education (PE) provides an important source of PA for youths (Brusseau et al., 2011; Hannon, 2008). However, only 36% of all states specify time requirements, such as minutes per week for elementary school PE (Lee, Burgeson, Fulton, & Spain, 2007). In addition, only 3.8% of elementary schools, 7.9% of middle schools, and 2.1% of high schools provided daily PE for the entire school year (36 weeks) for students in all grades levels (Kyle et al., 2007).

These statistics indicate that students are not getting enough daily PA through PE. The academic classroom setting where most of a student’s hours are spent is a potential place in the school to promote PA (Kohl, Moore, Sutton, Kibbe, & Schneider, 2001). However, less than 5% of students’ daily PA occurs in the classroom setting (Brusseau et al., 2011). Although classroom teachers believe that PA will positively affect learning and behavior in the classroom, many consider the PA opportunities they provide in school as having little educational value (Morgan & Hansen, 2008). MI is one strategy where teachers can promote PA of educational value in the classroom (Wechsler, McKenna, Lee, & Dietz, 2004). Movement integration is defined as incorporating movement into academic concepts as part of planned lessons to enable students to be physically active (Parks et al., 2007).

Ten-minute bouts of MI activities in the classroom have been found to increase students’ PA to moderate intensity levels (Stewart, Dennison, Kohl, & Doyle, 2004). Participating in at least 10-minute bouts of moderate intensity PA daily is recommended for health benefits (Haskell et al., 2007). In addition, students’ in-school step counts increased after teachers incorporated MI activities during the school day (Erwin, Beighle, Morgan, & Noland, 2011; Mahar et al., 2006). MI is also effective in improving students’ on-task behavior, focus during academic instruction, academic learning capability, and academic performance (Bartholomew & Jowers, 2011; Donnelly & Lambourne, 2011; Grieco, Jowers, & Bartholomew, 2009; Kibbe et al., 2011; Mahar et al., 2006). Specifically, it was found that students’ retention of spelling ability was enhanced following the use of movement integrated lessons (Bartholomew & Jowers, 2011). Elementary school students who are involved in PA had significantly higher academic grades than students who are not involved in PA (Coe, Pivarnik, Womack, Reeves, & Malina, 2006). In addition, students who performed PA and movement before taking standardized tests have been found to achieve better academic grades (Howe & Pate, 2012).

Although there are benefits to infusing MI with academic subjects, there is limited research examining classroom teachers’ perceptions toward integrating movement in the classroom (Webster, 2011; Webster, Monsma, & Erwin, 2010). Understanding such perceptions is important as it is unlikely that teachers will implement MI if they have negative perceptions or limited knowledge regarding its implementation. Furthermore, it is important to understand teacher perceptions of the barriers to integrating movement into the class setting because if they believe
that there are too many barriers, they may not be likely to implement it regardless of how beneficial they think MI might be. A teacher preparatory program incorporating MI was developed for PCTs, and their perceptions toward MI were examined in this study. PCTs are university students majoring in education and undergoing training to obtain a teacher licensure to teach in K-12 schools.

THEORETICAL PERSPECTIVES

Two theoretical perspectives—transformative learning theory and social ecological model—were used in this study. The transformative learning theory (TLT; Mezirow, 1994) informed the creation of the MI curriculum for PCTs. Both theories were used to frame the scope of the interview questions and interpret the findings of the study. A branch of adult learning theory, the TLT, attempts to explain the process by which adults learn. According to the theory, a defining characteristic of adult learning is the process of perspective transformation, such as changes in understanding of the self, revision of belief systems, and changes in lifestyle behaviors (Mezirow, 1994). Assumptions and expectations that influence the way adults think, believe, and act are proposed to be changed in the transformative process (Taylor, 2008). Not only is there an epistemological change in worldview, there is also an ontological shift in a need to act on the new perspectives (Lange, 2004). Mezirow (1994) suggests including these important elements in a perspective-transformation education: examining the self, exploring options for new actions, planning a course for action, acquiring knowledge and skills to implement plans, and building competence in new roles. Opportunities and experiences should be created to allow learners to test and explore new perspectives for full transformation (Taylor, 2008).

In a study exploring TLT in relation to PA, teachers who expressed negative perceptions toward promoting PA in schools became more empowered to become independent facilitators of PA promotion in schools through a teacher preparatory program (Faucette, Nugent, Sallis, & McKenzie, 2002). Additionally, in another program that prepared teacher candidates to become culturally competent to teach in a multicultural classroom, candidates were found to have gained a greater awareness of self, stronger appreciation of others, and higher levels of commitment to create a positive learning environment for their own students (Bowles, 2011). A teacher preparatory program incorporating MI grounded in the TLT was therefore developed in this project, and PCTs’ transformative experiences were examined.

We also used the social ecological model (SEM; McLeroy, Bibeau, Steckler, & Glanz, 1988) as a theoretical framework to examine PCTs’ perceived barriers in implementing MI in schools. The model considers individual and social environmental factors that influence behaviors. Examples of individual-level factors include perceived ability, attitudes, beliefs, and knowledge whereas social factors include influences within an individual’s immediate and distal surroundings (McLeroy, et al., 1988). The SEM was developed for health promotion interventions that focus on examining behavior relative to five spheres of influence: intrapersonal, interpersonal, organizational, community, and public policy (McLeroy et al., 1988). The intrapersonal level includes demographic, psychological, and behavioral characteristics within an individual whereas the interpersonal level includes family influences, friends, and one’s social network (McLeroy et al., 1988). The top three levels of the model—organizational, community, and public policy—
TRANSFORMING PCTS’ PERCEPTIONS TOWARD MOVEMENT INTEGRATION

refer to social environmental influences on behavior that may be beyond the individual’s control (McLeroy et al., 1988).

Researchers have used the SEM to study barriers in PA participation. For example, many adolescents have indicated that barriers toward PA participation are inaccessibility to facilities, insufficient equipment, and unavailability of PA programs, which exists mainly at the top three levels (Beaulac, Bouchard, & Kristjansson, 2009; Robertson-Wilson, Lévesque, & Richard, 2009). This model has also been used to delineate different levels of influence, such as at a teacher level, principal level, school board level, and government level to examine PA promotion efforts in schools (Langille & Rodgers, 2010). However, this model has not been used to examine teachers’ perceived barriers toward MI. Therefore, in this study, we used the model’s five spheres of influence to examine PCTs’ perceived barriers toward MI.

Although classroom teachers are called upon to assume an activist role in increasing children’s daily PA in school (Webster et al., 2010), PCTs’ perceptions toward MI are relatively unknown. Therefore, using a qualitative approach, this study examined PCTs’ perceptions toward MI after they had completed a semester-long teacher preparatory program. The TLT was used to frame changes in PCTs’ perceptions and personal behaviors during the course, and the SEM was used to investigate PCTs’ perceived barriers to MI.

METHOD

Setting and Curriculum

An integrated approach titled Physical Education Programming Infusion (PEPI) was introduced to infuse PA promotion into a required college-level Science Methods teacher preparatory course for PCTs. PEPI is a weekly 30-minute program infused in a 180-minute Science Methods course within a semester (12 weeks). The program was a collaborative initiative between the Urban Institute for Teacher Education and the Exercise and Sport Science Department to reintroduce PE into PCTs’ curriculum after a required PE methods course was removed due to curricular restructuring. Information presented to PCTs during PEPI was designed to fit into the 30-minute time frame. The PEPI curriculum was designed using the TLT framework (Mezirow, 1994):

Phase 1: Examining the self and exploring options for new actions
Phase 2: Planning a course for action and acquiring knowledge and skills to implement plans
Phase 3: Building competence in new roles.

The objective of Phase 1 was to help PCTs become aware of their personal PA and dietary behavior. Activities and assignments were designed and presented to PCTs to achieve this objective. The objective of Phase 2 was to provide PCTs the skills to integrate movement and healthy lifestyle knowledge into academic subjects. Different resources for healthy lifestyle promotion and MI programs were presented to the PCTs. The instructor modeled the integrated lessons and ideas in the classroom settings and gymnasiums with specific academic content and physical activities appropriate to the grade levels. The objective of Phase 3 was to assist the PCTs to develop competency in their new roles as PA promoters in schools. To achieve this objective, PCTs planned and taught mini integrated lessons and ideas to their peers. Critically reflecting on past experiences is also an important step in transformative learning education (Taylor, 2008).
TABLE 1
List of Activities and Assignments in PEPI

<table>
<thead>
<tr>
<th>Phase 1 (Class sessions 1–3)</th>
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<tbody>
<tr>
<td>Instructor presented the course syllabus, physical activity guidelines for children and adults, and information regarding movement integration</td>
<td></td>
</tr>
<tr>
<td>PCTs record daily food intake using food log and analyze personal dietary behavior using the website: <a href="http://www.choosemyplate.gov">http://www.choosemyplate.gov</a></td>
<td></td>
</tr>
<tr>
<td>PCTs record daily walking steps using a pedometer and pedometer log</td>
<td></td>
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</tbody>
</table>

Phase 2 (Class sessions 4–8)
Instructor presented the AHS TM Classroom Activities Card Sets where PCTs learned how to implement activity breaks in a classroom setting.
Instructor presented the TAKE 10! ® classroom-based, PA promotion curriculum developed by the International Life Sciences Institute Center for Health Promotion (ILSI CHP). The TAKE 10! ® program consists of 10-minute physical activity movement integrated with language arts, math, science, social studies and general health lessons that are designed for K-5 grade levels (http://www.take10.net)
Instructor presented the Energizers program. Energizers consist of classroom-based physical activities that last approximately 10 minutes, which integrate grade-appropriate learning materials that require little equipment and teacher preparation (Mahar et al., 2006)
PCTs were divided into groups to design a research question and chart the pedometer data that was collected in phase one to further reinforce the concept of science-PA integration
Instructor presented strategies to integrate academic concepts with activities in the gymnasium. The activities presented were “Measuring personal heart rate” and “Balance my diet games”

Phase 3 (Class sessions 9–12)
PCTs worked in pairs to plan and teach mini integrated lessons and ideas to the whole class in the gymnasium over the four class sessions.
Feedback was provided by the instructor to help PCTs refine their integrated lesson teaching skills.

PEPI = Physical Education Programming Infusion; PCT = preservice classroom teachers; AHS = Active and Healthy schools; PA = physical activity.

Therefore, the PCTs reflected on what they had learned in PEPI, and why and how they could apply the activities in the real school settings in the future. Table 1 provides a list of activities carried out in PEPI.

Participants

Institutional approval and participant informed consent were obtained prior to the study. In the spring 2011 semester, 32 PCTs (27 females and five males, age 20 to 49) participated in PEPI. The PCTs were approached by the primary author and contacted through e-mails, and follow-up phone calls to recruit participants to participate in an individual qualitative, face-to-face, semistructured interview at the end of the PEPI. Ten participants responded to the interview requests, and a 60-minute interview appointment was scheduled at a convenient time and place. The actual duration of each audio-recorded interview ranged from 30 to 50 minutes.
Among the 10 PCTs (eight females and two males, age 21 to 42) who participated in the interviews, seven were undergraduate students whereas three were graduate students. Seven were scheduled to start their student teaching practicum in the following semester, though three had at least one more year of coursework before they were to start their student teaching practicum.
Data Collection

The participants were briefed on the purpose of the study, instructed on the use of the voice recorder, and asked if they had any questions before the interview (Kvale, 1996). A semistructured interview protocol was used to allow for flexibility to follow up on any of the open responses (Fontana & Frey, 2005). The design of the interview questions was influenced by the two theoretical frameworks aimed at answering the research questions. The questions focused on changes PCTs experienced through PEPI and their perceived barriers to MI in schools. The interviews ended with a debriefing and the participants were asked if they had any further comments or questions about the study (Kvale, 1996). Table 2 provides the interview guide questions. Brief notes were taken during the interviews to formulate new questions as the interview proceeded, facilitate subsequent analysis such as locating quotations from the recordings, and serve as a backup in the event that the recorder malfunctioned (Patton, 2001).

Data Analysis

The audio-recorded data were transcribed verbatim after the interviews were completed. Using the two theoretical frameworks, the transcripts were analyzed to identify changes PCTs experienced through the program and perceived barriers they had toward MI. The primary author conducted preliminary data analysis by reading and rereading the transcribed data to identify themes, which came from direct quotes (Aronson, 1994). The transcripts were further analyzed inductively for themes that might provide new perspectives to the study. Such themes emerged inductively from the data, rather than data being placed into a priori themes (Kvale, 1996). After

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**TABLE 2**

**Interview Guide**

<table>
<thead>
<tr>
<th>Rapport building questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tell me your physical education experiences in school as a student.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Questions that focus on the research questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. What is your overall impression about the infusion program?</td>
</tr>
<tr>
<td>3. What parts of the infusion program do you find the most useful/helpful?</td>
</tr>
<tr>
<td>4. What parts of the program were not useful or disruptive to teaching science?</td>
</tr>
<tr>
<td>5. How do you feel about teaching integration activities before the infusion program? How has that changed after the infusion program?</td>
</tr>
<tr>
<td>6. Did the program change how you feel about your own level of physical activity?</td>
</tr>
<tr>
<td>7. What will enable/help you to conduct integrated classroom activities in schools?</td>
</tr>
<tr>
<td>8. What barriers will you encounter toward integrated classroom activities in schools?</td>
</tr>
<tr>
<td>9. Will you implement integrated classroom activities in schools? If yes, how? If no, why?</td>
</tr>
<tr>
<td>10. How do integrated classroom activities benefit children?</td>
</tr>
<tr>
<td>11. Do you consider yourself a physical activity role model to the children? Why do/why don’t you consider yourself as a role model?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Closing questions:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. What other concerns do you have in teaching integrated classroom activities? What do you plan to do to alleviate these concerns?</td>
</tr>
<tr>
<td>13. Is there anything you want to share with me that is important for this study?</td>
</tr>
</tbody>
</table>
the themes were developed, the primary author discussed and confirmed the themes through peer briefing with the other authors. Peer debriefing was used during data collection and analysis to increase the credibility of the study and ensure that analyses were grounded in the data (Marshall & Rossman, 2011).

RESULTS

Major themes identified through the analysis are presented in this section. The major themes were (1) self-awareness of lifestyle choices, (2) changes in perceptions and personal lifestyle, (3) perceived barriers to MI, and (4) stronger beliefs as healthy role models. Quotations from the participants’ interviews are used to illustrate the themes. Pseudonyms are used to ensure anonymity of the participants.

Self-Awareness of Lifestyle Choices

One of the purposes of PEPI was to structure activities that would help the PCTs to become aware of their personal lifestyles. Participants consistently agreed that they became more aware of their personal PA and dietary behaviors through the activities they participated in Phase 1. Sharon described her experience of tracking her daily step counts using the pedometer: “I realized that I just didn’t move nearly as much as I wanted to be moving . . . and it was like, ‘Oh wow, I just walked that much’, you know.” Carol commented that wearing the pedometer served as a reminder of the number of steps she had taken, as she shared: “I kept looking [at it] throughout the day, like, ‘oh, 6000, and I have to walk like 4000 more [laugh] I get really into it.” Karen described her disappointment at how little she walked:

The days that I was under 6000, I was definitely disappointed at myself, even though 6000 is only the average, that’s not even my goal. When I was getting under the American average, I was like, “Oh my gosh, Karen, like Americans are lazy, chubby people and if you’re getting under the American average, you need to get a little more,” I’m always kind of disappointed in myself for not exercising more and it was another level of reminding me.

Although most participants mentioned that they were not accruing the recommended number of steps as indicated on their pedometers, the pedometer assignment made them think about what they could do to become more physically active. For instance, Theresa mentioned: “It definitely made me aware of my physical activity level and it made me think about making some changes and what I may want to do to get myself more active.” Jennifer commented that the pedometer assignment is also applicable for the children in her future classroom: “I think it’s a great thing for kids to actually be aware of how much they are moving.”

The assignment where participants reported their daily food intake also raised their awareness of their personal dietary behavior. For example, Andrew commented: “It was interesting to see how much I lacked, like fruits and vegetables.” Jennifer also gained valuable information through this assignment: “It was just good to be very specific, like, you are supposed to have 2 cups of milk per day, which I didn’t know and things like that, so that was very helpful.” Carol mentioned that this assignment was beneficial and applicable to school children:
I think it’s really important for kids to kind of see, you know, exactly how much... ‘cause you hear like 2–3 servings of vegetables, but you don’t really know, in your mind like how much I’m eating, is this a serving or 2 servings. So it’s nice to just plunk it into that website and be able to see like, “oh that is actually 3 servings of fruit.” I didn’t realize that, you know, so, I think that was really important, I can really apply that to the classroom and I really thought that was a beneficial activity to kind of track your eating.

The activities and assignments carried out in Phase 1 of PEPI created awareness in the participants toward their personal health behaviors. In the process, they gained knowledge about strategies to maintain a healthy lifestyle.

Changes in Perceptions and Personal Lifestyle

After the PCTs became more aware of their personal health behaviors, they reported making tangible changes in their personal lifestyles to incorporate more ways to become healthy. For example, Carol stated:

I’ve cut out dessert for a while so I stopped eating as many sweets because I was eating sweets every night. . . . I am also trying to work out more and get back into running more and I’m getting that road bike, so that I can get more into cycling.

Regina started wearing her personal pedometer after it was introduced in PEPI. She described her experience:

I’ve been writing my steps on my calendar every day. That’s by my door so that I can remind myself, “You better get out and do something” [laugh] . . . I drew a smiley face on the calendar yesterday when I got 13,000 steps . . . I want to make that my goal for at least the weekdays.

PEPI provided participants with ways they could reconceptualize their lesson plans to include MI into the classroom. In the process, their perspectives toward creating opportunities in their lives to be more physically active also changed as they became more empowered to find ways and time to be more physically active. Michael commented: “My views’ changed over the course. I feel like, you know, I didn’t know before, and now, I’ve been made aware, I’ve kind of opened up to the process.” Andrew also commented: “I went to the store, while I was pulling into the parking lot, I was like, maybe I park a little bit further back, and then I will get more steps when I walk.” In addition, Karen said, “I started printing at a printer that was further away from my office.” Sharon applied what she learned in PEPI and transferred her knowledge of MI from the classroom to her work place: “This class has actually brought down a lot of barriers in my own mind . . . it’s given me the tools to kind of start incorporating this kind of movement into my classroom.” She continued:

I can definitely do any of these 5 minute moves at my desk, at work . . . I’ve been very cognizant of the fact that I’ve been sitting at my desk for 20 minutes and I need to get up to move . . . at work, I bought a balance ball that I sit on now, instead of a chair, these kind of things and ways to incorporate more movement, cause I realized how sedentary I was at work all the time.

Participants were initially made aware of their personal health behaviors and in the process, there was a transformation of their perspectives toward creating opportunities to incorporate ways
to lead a more physically active lifestyle. They also reported strategies of applying MI into their daily personal lives and workplace.

**Perceived Barriers to Movement Integration**

Having presented the PCTs with skills and provided them with opportunities to implement MI through peer teaching in Phases 2 and 3 of PEPI, we examined their perceived barriers that were of concern in implementing MI. From their responses, we found that most of their reported barriers centered on the lack of time, pressure from testing, space constraints, classroom management, and attitudes of colleagues and administrators. The PCTs perceived that they would be pressured to complete the core curriculum in schools, and as a result they would not have time to conduct MI activities in the classroom. For example, Sharon commented, “Oh my gosh, I’ve got this huge curriculum that I have to get through this year. There’s no way that I can find time for this (movement integration).” Sally concurred, “The only thing I’m worried about is having time.” In relation to the lack of time to complete core curriculum, two participants mentioned perceived pressure to do well for testing in academic subjects. Karen commented, “This (movement integration) will be one of the first things that if you’re running out of time, you don’t do because your kids aren’t going to be tested on it.” Regina also described her thought:

> We got to do the testing at the end of the year, so I guess time will be the biggest barrier, ‘cause I’m afraid of not getting through all the materials, ‘cause I know for the “No Child Left Behind” and all that, we have to have them pass these tests, or we’ll get into big trouble. So, if we get ranked behind, I’ll be like, “Oh, there’s no time for anything, but focusing on the material.”

Two participants voiced their concerns about space constraints in the classroom as a perceived barrier to MI. Regina mentioned, “We need space in the room, so that they can move around, in case they crash into each other or objects and stuff.” In regards to the safety aspect in the classroom, Sharon also commented, “There are potential issues with safety... when you are in a fairly crowded classroom, desks and chairs and you’re doing movement activities, you don’t want someone to trip and fall and get hurt or that kind of thing.”

Some participants were also worried about classroom management in conducting MI. Michael said, “Some people are just uncomfortable with letting their students out of their chairs; they think that they are going to lose control.” One participant, Sharon, who would eventually teach at the secondary level, was concerned with the attitudes of the students toward MI:

> I look at secondary kids and I see that, especially at the junior high and middle school levels of having that real inability to make a fool of themselves. They feel self-conscious all the time, and they don’t want to be in a group of people and doing goofy moves or dancing in the middle of class.

Even though some participants felt that classroom management would be a challenge in MI, Carol mentioned that teachers can take control of the situation, as she asserted: “You have to make sure you explicitly explain the activities and you explain what they are supposed to do and what they are not supposed to do.” However, Carol was more concerned with the attitudes of colleagues and administrators toward MI: “You tell them you are going to do this activity, and they are like, ‘good luck with that,’ and it will maybe make you feel like, maybe I shouldn’t be doing this.” In addition, Karen also commented, “If my boss or my administrator thinks that it is a waste of time... that might make it a little more difficult.” Another participant, Andrew was
concerned with introducing new things to the existing school culture: “If they (other teachers) are kind of set in their ways, like I am probably going to enter schools with teachers that have been doing things their way for so long, and they might not recognize the benefits of it.”

Although participants highlighted these perceived barriers to MI, they consistently agreed that having available resources would provide them with lesson plan ideas that they could use in their future classroom. For example, Jennifer said, “A lot of the websites have good resources, so I’ll certainly take a look at those and kind of plan what I want to do with the kids.” Karen concurred, “The most useful were the online resources; those are more realistic for most of us than the things that you have to buy, because there are so many things that I would like to buy for my classroom.” Additionally Carol commented, “There are so many resources online, and based on what my kids are interested in, I can go and research, try to apply to the classroom and find activities and maybe with science, to study solar systems.” Through the interviews, participants voiced their concerns and perceived barriers toward MI in their future classroom. Nonetheless, they appeared to be positive about implementing MI in the future with available online resources.

**Stronger Beliefs as Healthy Role Models**

The participants indicated stronger beliefs in the benefits of MI and suggested that they aspired to become healthy role models to their students. One participant, Karen described her negative experience as a child and how she would want to counteract that: “Our junior high girls’ PE teacher was constantly sitting, drinking soda, eating chips, watching us do PE, and it was just ridiculous. Anyway, she was just the most horrible role model you can ever have for fitness.” Theresa also shared her experience observing her daughter’s class and it reinforced to her the need to incorporate movement in the classroom:

> My kid’s teacher taught them math after lunch, I just, I wanted to kill her. [laugh] They are tired and my daughter loves math but I just think that was the oddest time to be teaching math because they’re not really alert . . . I just remember that that was kind of a sleepy time for them. And when I go into the classroom, they’re comatose, pretty dead.

In response to whether she was concerned with having support from her future principal or the administrators to conduct MI, Theresa continued, “They are in those positions ‘cause they care about kids, so I think they will embrace it, I hope. I’ll squeeze it in, if they don’t [laugh], I will work around it.” Sharon shared that by making efforts to incorporate MI in her classrooms, she hoped to influence the policy makers’ views about it:

> If you can show that what you are doing is beneficial, then I think it really helps them to understand that what you’re doing is not a waste of time and it’s a good thing. And hopefully, they realized that with the obesity epidemic and everything else, this is something we need to be doing and getting students moving and understanding that this is a fun thing to do and not a task.

The participants’ appreciated the benefits of MI and they considered incorporating MI into their lesson plans. For example, Karen said:

> Several times throughout the semester, I’ve seen something, or thought of something, and said, “hey, I can do that with my kids to get them active,” you know what I mean. It’s just, it really helped me to include that in my planning of how, what I want my classroom to look like.
Finally, Rachel stated her belief that teachers have a responsibility toward instilling healthy living habits into their students said:

I think a lot of children you know, when they go home, you don’t necessarily know that they’re getting activity, and so I think it’s important to make sure that as a teacher, that not only are you teaching your students, like you know, the curriculum, but you’re also teaching them how to live healthy.

The participants shared examples of unhealthy role models that they had personally experienced or observed, and they indicated a desire to counteract those unhealthy practices. In addition, they reported a strong belief that teachers could be influential in regard to healthy behavior and that they aspired to become healthy role models to their future students.

DISCUSSION

One purpose of this study was to investigate changes in PCTs’ perceptions and personal behaviors through a semester-long PE infusion course (PEPI). From the TLT perspective, PEPI was designed to allow participants to examine the self through activities that helped them become aware of their personal health behaviors, followed by acquiring knowledge, skills, and competence to implement MI in the classroom (Mezirow, 1994). Through the activities in PEPI, the PCTs became more aware of their personal PA and dietary behaviors. Furthermore, they communicated a desire to change their personal lifestyles by incorporating more movement into their daily living. In accordance with the TLT (Mezirow, 1994), participants’ perspectives toward MI were beginning to be transformed as they gained increased understanding of themselves and reported making behavioral changes to their lifestyles. Some participants suggested that incorporating short chunks of time to MI in classrooms was similar to making small changes to include PA into their lifestyles. The PCTs also indicated a greater sense of empowerment to create time to integrate movement in their personal lifestyles and in their future classrooms. Similarly in another program grounded in the TLT, participants communicated a sense of commitment to become PA promoters in schools (Faucette et al., 2002).

The second purpose of the study was to examine PCTs’ perceived barriers relative to MI in the classroom. Components of the SEM were used to interpret the findings. The data revealed that the PCTs were concerned with barriers primarily at the organizational or school level. These included barriers such as the lack of time, pressure from testing, space constraints, classroom management, and attitudes of colleagues and administrators toward MI. The barriers toward MI perceived by the participants are consistent with other studies, which found that in-service teachers also experienced barriers promoting PA at an organizational level, such as lack of time and priority placed over other teaching subjects (Gibson et al., 2008; Parks et al., 2007; Tsai, Boonpleng, McElmurry, Park, & McCreary, 2009).

Factors at the intrapersonal and interpersonal levels were not mentioned as barriers by the participants in this study, a finding possibly related to the fact that participants may have perceived greater competence in their roles as PA promoters in schools as a consequence of PEPI. More distal spheres of influence highlighted in the SEM (e.g., policy and community levels) were also not perceived as barriers in implementing MI. A logical explanation for this finding is that the participants in this study had not yet taught in schools and thus had not considered how and why policy factors would affect promoting MI in the classrooms. Langille and Rodgers (2010)
examined the factors influencing PA promotion in schools relative to three SEM spheres of influence: organizational, community, and public policy levels. Participants from the government, the public school board, principals, and teachers were sampled and interviewed to explore perspectives of PA promotion in schools on the various levels of the model (Langille & Rodgers, 2010). Their findings suggest that even though higher level policies from the government and school board had a large impact on schools, interested teachers, or champions had a “push up” influence in which a bottom-up pressure affected the implementation of school-level policies (Langille & Rodgers, 2010). Along similar lines, participants in this study appeared to be motivated to champion the cause of PA promotion in their schools by taking steps to implement MI in their future classrooms.

Limitations and Future Directions

Although there are benefits to MI in the classroom, to our knowledge, there are no studies that qualitatively examine PCTs’ perceptions to incorporate movement activities in academic subjects. This study provides insight into PCTs’ perceptions of barriers to MI as well as personal behavior changes they experienced through PEPI. However, the findings are limited to the perceptions of a small number of teachers who have not yet taught in schools. More data can be collected from a second larger study to confirm current findings with experienced classroom teachers. The larger study could investigate whether there are consistent patterns in the findings with this pilot study. For example, the findings in this study can be presented to experienced classroom teachers, asking them to indicate through a ranking process the barriers identified by the PCTs and to add other constraints not included in this pilot study. A survey with a Likert-type scale can also be devised based on the findings of this study and use on a larger sample of experienced classroom teachers.

Although the PCTs communicated a desire to incorporate more movement into their daily lives, we do not know if changes made to their lifestyle will be sustainable. Future studies should follow up with PCTs to explore what actual barriers they encounter in facilitating MI in the classrooms and if they continue to incorporate healthy practices in their lifestyle. Future research can also examine perceptions of MI at other levels of influence proposed by the SEM to ascertain a more comprehensive picture of the forces that support or suppress the inclusion of MI in school settings.

Implications for Practice

There are several implications for practice from the results of this study. Priority given to academic subjects and lack of time are common perceived barriers by the PCTs to incorporating MI in the classrooms. Therefore, it is important to address these organizational barriers and discover strategies that might assist teachers in integrating movement opportunities in the classroom. Schools are not likely to lighten academic standards to allow teachers to address health-related activities in the classrooms (Langille & Rodgers, 2010). Continued emphasis on standardized testing makes it challenging to implement PA interventions that do not directly support academic instruction (Bartholomew & Jowers, 2011). Hence, MI with academic subjects provides a means through which teachers can incorporate movement in the classroom while teaching the curriculum content. With continued evidence that MI is effective to improve students’ on-task
behaviors, academic learning capability, and academic performance (Bartholomew & Jowers, 2011; Donnelly & Lambourne, 2011; Kibbe et al., 2011), it is important to garner support for MI from the broader spheres of influence, such as at the administrative level. Garnering their support might alleviate some of the organizational barriers in MI suggested by the PCTs to enhance PA promotion in schools. One suggestion is to inform personnel at the organizational level of the benefits of MI and train them to implement MI in schools.

It is also important to structure teacher preparatory courses for PCTs that not only focus on how to teach PA, but also on why the promotion of PA is critical. This philosophy is consistent with the tenets of the TLT, which advocate the use of critical reflection during education (Kreber, 2004). In this study, to facilitate a perspective transformation during PEPI, the PCTs reflected upon why MI is important in school settings, and how to apply the activities in the future. Reflection is a possible pathway to successfully incorporating MI into the classroom by focusing on fostering teachers’ appreciation for MI. PEPI was structured such that PCTs became more aware of their personal health behaviors and empowered to make changes toward healthy lifestyles through assignments carried out in Phase 1. Assisting PCTs in identifying personal benefits of a physically active lifestyle and encouraging them to pursue activities they enjoy would consequently increase their beliefs to enter the education profession as agents of change in the health and well-being of their students (Hall, Little, & Heidorn, 2011). PEPI also prepared the PCTs to take on roles as active and competent PA promoters in their classrooms by teaching mini-movement-integrated lessons. Helping them to build their competency toward MI is important because teachers are a major source of influence in providing PA opportunities for students in the school.

CONCLUSION

This study provided a qualitative exploration of PCTs’ perceptions toward their personal health behaviors and perceptions of MI in their future classrooms through a semester-long PE infusion course. Considering that children are not getting enough daily PA, incorporating MI into science, math, language arts, and other subjects in self-contained elementary classrooms is a promising strategy to increase PA of school students. Barriers cited to MI are common to other PA promotion efforts in schools. Therefore, a shift in a mindset toward these barriers will empower the PCTs to create time for PA in their personal lifestyles and MI in their future schools. Because PCTs enter the education profession as prospective agents of change in the health and well-being of their students, reconceptualizing their views toward barriers in PA will strengthen their beliefs toward becoming healthy role models.

REFERENCES


**Tan Leng Goh** is a PhD student in Sport Pedagogy at the University of Utah. Her research interest includes examining teachers’ perception toward movement integration.

**James C. Hannon** is an Associate Professor of Exercise and Sport Science at the University of Utah. He directs the sport pedagogy/physical activity assessment lab and graduate studies.

**Maria Newton** is an Associate Professor of Sport and Exercise Psychology at the University of Utah in the Department of Sport and Exercise Science.

**Collin Webster** is an Associate Professor in the Department of Physical Education and Athletic Training at the University of South Carolina.

**Leslie Podlog** is an Assistant Professor of Sport and Exercise Psychology at the University of Utah in the Department of Sport and Exercise Science.

**Wanda Pillow** is an Associate Professor in the Department of Education, Culture and Society and Gender Studies at the University of Utah.