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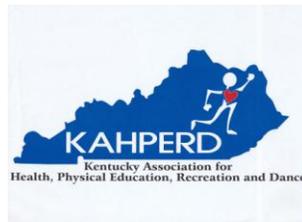
**Kentucky Association of Health, Physical Education,
Recreation and Dance**



Movers and Shakers of the Sport and Physical Education in KY

[KAHPERD JOURNAL]

Volume 48, Issue Number 2



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Message from the President

To all you journal readers I give you greetings from your KAHPERD president. I want to thank Steve Chen for accepting the responsibility of being our new Journal editor and for all those writers who have contributed to this edition. Our fall convention is forming up well and will be anchored by the following: Sunday KDE will once again host a teachers workshop in the evening; Monday, University of Kentucky head football coach Joker Phillips will be the guest speaker at our general session and Jimmi Lee Stillwell will conduct a workshop entitled "Activities Your Kids Are Going To Love"; Tuesday's general session will feature Shellie Pfohl the executive director of the President's Council on Fitness, Sport, and Nutrition.

Our own Mike Ballard was president of Southern District this past year and ran a very successful convention in Greensboro, North Carolina in February. Attendance was up both on the professional level and the student level with positive reviews coming from all who were present. Western Kentucky University provided two award winners from SDAHPERD. Congratulations go to Andrea Moore for winning the Future Professional of the Year and Dr. Willie Hey the Scholar Award. Next year's Southern District February conference will be held in Orlando, Florida.

San Diego hosted the recent national AAHPERD convention. Once again attendance was up as a more positive "can do" attitude prevailed throughout the proceedings and sessions. E. Paul Roetert Chief Executive Director of AAHPERD understands the task set before him (A large deficit in income) and revealed plans to become a viable national organization within the limits of a changing educational landscape. Those present in the voting body of the Alliance gave Paul their whole hearted approval of his vision of the future and his mission to stabilize the Alliance. Next year's National conference will be held in Boston. Upcoming Workshops include the KAHPERD summer workshop to be held at Florence Elementary School in Florence Kentucky Monday June 13th and Tuesday June 14th. You may go to the KAHPERD website to preregister. Cost will be \$55 for Professionals up to or on May 21st and \$70 thereafter. Registration will continue online until June the 6th and then be available on site after that date. There will also be a tri-state workshop conducted in Bristol, Virginia Monday, June the 27th. You may go to the Southern District website to preregister up to June the 13th (\$40, includes bag lunch). After that date on site registration will be \$50.

Announcements

- (1) KAHPERD 2011 Annual Convention in Lexington Embassy Suites Hotel: Nov. 13-15, 2011 (Sunday to Tuesday)
- (2) KAHPERD Summer Physical Education Workshop at Florence Elementary School (103 Center Street, Florence, KY 41042): June 13-14
- (3) SDAHPERD 2012 Convention in Orlando, FL (Caribe Royale Hotel): February 8-11, 2012
- (4) AAHPERD 2010 National Convention in Boston, MA (United We Move): March 13-17, 2012

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The KAHPERD Journal is published two times a year (Spring and Fall) by the Kentucky Association of Health, Physical Education, Recreation and Dance. All correspondence should be mailed c/o Steve Chen, Journal Editor - Morehead State University, Department of Business - Morehead, KY 40351. Membership in the Association (with annual dues of \$35 professional, \$15 student) entitles one to receive all journals for that year.

In submitting an article, the author accepts responsibility that it has not been published or accepted for publication elsewhere, unless otherwise stated in writing.

Acknowledgement

As the Editor of the KAHPERD Journal, I would like to show my appreciation to the following guest reviewers for their assistance in reviewing this current issue.

Dr. Glacio Scrimins, Jacksonville State University

Dr. Pamela Beehler, Northern Kentucky University

Dr. June Robinson, Kentucky State University

Dr. Kristi King, University of Louisville

Mr. Jae-Pil Ha, University of Louisville

Mr. Mark Deaton, Morehead State University

Sincerely,

Steve Chen

KAHPERD Journal Submission Guideline

SUBMISSION OF A PAPER

The KAHPERD Journal is published twice yearly (spring and fall) by the Kentucky Association for Health, Physical Education, Recreation, and Dance. The journal welcomes the submission of empirical research papers, articles/commentaries, best practices/strategies, interviews, research abstracts (spring Issue only) and book reviews from academics and practitioners. Please read the information below about the aims and scope of the journal, the format and style for submitted material and the submissions protocol. Your work will more likely to be published, if you follow the following guidelines thoroughly.

Articles are accepted via an electronic attachment (must be in Microsoft Word format, doc or docx) through e-mail to the editor before the deadline dates. Submissions should be sent to editor, Steve Chen: s.chen@moreheadstate.edu

Deadlines: Spring issue—March 1 & fall issue—September 1

AIMS AND SCOPE

The main mission is to bring together academics and practitioners to further the knowledge and understanding of issues and topics related to health, physical education, sport administration and marketing, exercise science, sport coaching, dance, and recreation, etc. We encourage submissions relating to these topics from a variety of perspectives.

CONTENT

All articles should be written primarily to inform senior practitioners and academics involved in areas of health, physical education, recreation and dance.

Research articles should be well grounded conceptually and theoretically, and be methodologically sound. Qualitative and quantitative pieces of research are equally appropriate. A good format to follow would be: Introduction, Literature Review, Methodology, Results, & Discussion, Conclusion, and Implication. Articles may include an abstract of approximately 150 words including the rationale for the study, methods used, key findings and conclusions. Article should not exceed 10 double-spaced pages (including the references).

Reviews of books and/or reports are welcome (around 1000-2000 words). Information concerning the book/report must be sent to the editor.

Interviews (it would be nice to discuss with the editor beforehand) and best practice/strategy papers of 1,500-3,000 words should be objective and informative rather than promotional and should follow the following format:

Objective/Background/Discussion and Practical Implication.

Research abstracts (300 words or less) are welcome and limited to the spring issue only.

The submitted abstracts should have been presented (either an oral or a poster presentation) in the KAHPERD annual conference in the previous year.

*The editor is keen to discuss and advise on proposed research projects, but this is no guarantee of publication.

FORMAT AND STYLE

Manuscripts should follow the form of the guidelines for publications outlined in the 6th edition of the Publication Manual of the American Psychological Association.

Tables, charts, pictures, diagrams, drawings and figures should be in black and white, placed on separate pages at the end of the manuscript. They must be submitted photo ready and reproduced to fit into a standard print column of 3.5 inches. Only one copy of each illustration is required, and captions and proper citations should be typed on the bottom of the table and diagrams. Jargon should be reduced to a minimum, with technical language and acronyms clearly defined. The accuracy of any citations is the responsibility of the author(s).

For more specific style questions, please consult a recent edition of the journal.

SUBMISSIONS PROTOCOL

Submission of a paper to the publication implies agreement of the author(s) that copyright rests with KAHPERD Journal when the paper is published.

KAHPERD Journal will not accept any submissions that are under review with other publications. All manuscripts submitted will be peer reviewed by 3 members of the editorial board. To be accepted for publication in the journal, the article must be approved by no less than 2 of the 3 reviewers. Authors will normally receive a decision regarding publication within six to 12 weeks. Rejected manuscripts will not be returned.



Technology Integration: Pre-service Teachers' Perspectives

Adolfo Ramos, Western Kentucky University

Abstract

The integration of technology by the use of videotaping and computer analysis as an evaluation and reflection tool has been documented as being effective in the development of pre-service teachers (PTs). The investigators in this study examined how PTs felt regarding the use of videotaping as part of the Physical Education Teacher Education (PETE) program's field experiences (FE). PTs were asked to evaluate their ability to teach as well as using videotaping for reflection. Results were positive for their experience in developing teaching skills and using videotaping and computer analysis for the development of reflective skills. It is recommended that PTs practice using the videotaping and computer analysis technology prior to using the technology during their FE.

Key Words: Technology, Physical Education, Reflection

Introduction

Physical Education Teacher Education (PETE) programs integrate technology to enhance their students' preparation for teaching. Specifically, PETE programs use videotaping to record their student teachers (ST) as well as their preservice teachers (PTs) during field experiences (FE) and coding/analysis software to evaluate those experiences.

Well designed FEs, which are usually completed prior to student teaching (Smith, 1993) range from observation to full-scale teaching (Siedentop, 2001). FEs provide PTs with many opportunities to observe, practice professional teaching (Rich & Hannafin, 2008), and interact with teachers and students (Napper-Owen, Marston, Volkinburg, Afeman & Brewer, 2008). PTs also discover how schools operate day to day (Dodds, 1989).

The value of engaging the PT variety of FEs is expected by the National Council for Accreditation of Teacher Education (NCATE, 2008). New professionals who graduate from an accredited institution should attain the necessary content, pedagogical and professional knowledge, and skills to teach both independently and collaboratively. Furthermore, they should apply effective teaching methods while reflecting on practice and acting on feedback (NCATE, 2008). Understandingly, the goal of PETE programs is to develop physical education teachers who demonstrate acceptable performance in various areas as stated by the National Association of Sport and Physical Education (NASPE, 2009), which lists reflection among competencies deemed essential for beginning teachers (King, 2008).

The process of reflection allows future educators to clarify their goals as teachers and decide how to best accomplish those goals (Rink, 2009). Future professionals will be able to recognize the needs of children and to design and implement a program that is congruent with the particular situation of the school (Graham, Holt-Hale & Parker, 2007). Good

teachers reflect on the effectiveness of what they have taught and understand how successful they were.

The use of video dates back to the 1960s (Santagata, Gallimore & Stigler, 2005) providing opportunity for self-reflection and analysis of the teaching segment since the PTs can observe themselves in action (Jensen, Sheptston, Connor & Killmer, 1994). PTs can observe their teaching behaviors and conduct a careful critique of their performance (King, 2008).

The literature has shown that videotaping is a strong asset used to help PTs reflect on their teaching experiences. However, very little is known about what PTs think of it. Greenwalt (2008) found that PTs felt the assignment itself – recording, observing and writing about one's teaching- was structured as an imposition that was at the same time both unwelcoming and yet potentially useful.

Based on the literature, the purpose of this study was to examine how PTs felt about the use of videotaping and computer analysis as a means to develop and improve their reflective skills and to evaluate their teaching skills. The researcher developed the following hypotheses.

- Because participants in this study are still developing and getting used to teaching, expectations were that they will rank themselves low in most of the items of the 2-part questionnaire.
- Based on Rink's (2009) suggestion that one of the most difficult functions of teaching for beginning teachers is management, which is described as arranging the environment for learning and maintaining and developing student-appropriate behavior and engagement in content, was expected that PTs will show weaknesses in areas such as creating an appropriate learning environment, time management.
- According to the literature (Jensen, Sheptston, Connor & Killmer, 1994; King, 2008; Santagata, Gallimore & Stigler, 2005) we expect positive feedback towards the use of videotaping and computer analysis for reflection.

Method

Participants and Procedure

The participants in this study were six college-aged PTs enrolled in a Secondary Physical Education Practicum course, which was a requirement for the PETE. During a 5-week period the PTs taught three times per week to students in 7th or 8th grade classes at local area schools as part of the course requirements. Each PT had approximately 12 to 15 students to work with during the FE. Because PTs were assigned to teach at different schools, classes ranged from 45 to 55 minutes. Each PT was filmed at least four times during the FE. PTs were required to observe and reflect on each one of their videos after each teaching experience. They also coded their videos using Studiocode computer software to analyze specific events such as giving feedback and time management.

At the completion of the semester PTs were asked to volunteer for the study. Each participant agreed to participate after reading a letter describing the study. Each participant signed a letter of consent as stated by the Institutional Review Board. The study consisted

of PTs filling a 2-part questionnaire to evaluate their own abilities to teach during the entire FEs and using videotaping as a tool for reflection. PTs completed the questionnaire in a small computer lab, located across from the investigators' office, where they would be alone, to avoid any distractions. PTs were instructed not to discuss the questionnaire with other participants.

Instrumentation

A 2-part questionnaire used by Jensen et. al., (1994), which included a Videotape Self-Assessment tool and an Evaluation on Experience Assessment tool, was used for data collection. The 2-part questionnaire was modified to meet the needs of the present study.

The Videotape Self-Assessment asked PTs to rate themselves numerically from 1 (lowest) to 5 (highest) not on one specific lesson but throughout the entire 5-week FE. It consisted of four areas (Management of the Learning Environment, Instructional Strategies, Organization, & General Information from Teaching Experience) for subjects to evaluate themselves subjectively. Data from the Videotape Self-Assessment was analyzed to identify mean scores for each of the sections (Table 1).

The Evaluation on Experience Assessment consisted primarily of open ended questions asking PTs about their experience with videotaping during the FE. Data was analyzed using procedures found in Chen's study (2004): a) read and re-read; b) grouping similar information and incidents into categories and c) removing non-relevant properties and infrequent incidents.

Results

The findings of the study are presented in two different sections. The results from the Videotape Self-Assessment are presented before the results obtained using the Evaluation on Experience Assessment. The results for the Evaluation on Experience Assessment are presented with participants' comments as provided in previous studies (Fadde, Aud & Gilbert, 2009; King, 2008; Larson, 2005; Lee & Ravizza, 2008).

Videotape Self-Assessment

The Videotape Self-Assessment provided students with the opportunity to evaluate their own teaching experiences. The results presented overall mean scores above 4 out of a possible 5 were similar to those obtained by Jensen et al. in 1994, with results exceeding 4.0 for all but one item.

Management of the Learning Environment showed a mean score of 4.3. PTs felt strongly about their ability to establish a positive environment for learning, an area considered to be one of the most difficult functions of teaching for beginning teachers (Rink, 2009). This is a good indicator towards meeting NASPE Standard 4 for beginner teachers: understanding of individual and group motivation and behavior to create a safe learning environment.

Participants also indicated feeling good about their organizational skills (arrangement of time, space, people & equipment; Rink, 2009) with a mean score of 4.7. The result shows that PTs were efficient in planning and design of their lessons, aligned with NASPE Standard 6 for beginning teachers: plan and implement a variety of developmentally appropriate strategies. Planning is essential for teaching as well planned lessons assist children to learn concepts and skills taught (Graham, et al., 2009).

Regarding their Instructional Strategies, PTs had an overall mean score of 4.1. Two of the PTs circled 2 as their response for item #7, "I frequently asked higher order questions to my students." This is an area where a higher mean score was expected as most lessons were designed to be connected to NASPE Standard #2 (Demonstrate understanding of movement concepts, principles, strategies and tactics, as they apply to the learning and performance of physical activities) (NASPE, 2004). Asking higher order questions would be the better way to check for students' understanding.

The General Information from the Teaching Experience was the PTs strongest with a mean score of 4.7. Two of the PTs answered by selecting 3 out of 5 on item #3, which stated "videotaping and coding my lessons was an effective tool for feedback and reflection." Interestingly, both subjects later wrote on the open-ended question about using videotaping as a tool for reflection, "Great for reflection" and "Great tool for feedback for PTs."

Evaluation on Experience Assessment

The Evaluation on Experience Assessment tool consisted of six open ended reflective questions regarding the use of videotaping during the participants' FE. The PTs provided answers showing positive comments towards the use of videotaping to enhance their preparation for teaching.

Findings suggest that participants felt comfortable with the experience and that videotaping allowed them to identify their strengths and weaknesses in teaching. PTs also mentioned that when watching the videos they could better observe the students' behavior in the background. One of the participants wrote, "It allowed me to see things I could not otherwise." Another one indicated that "Could see instances when students were misbehaving behind my back." This is an indication that PTs struggled with their ability to observe and to position themselves, which is critical for classroom management and comprehensive observation (Graham, et al., 2007).

Most participants felt comfortable with the camera. One of the subjects however mentioned, "Felt nervous. Wanted to do well in front of the camera." Others in general mentioned things like "Did not realize it was there," and "It gave me the opportunity to observe myself while teaching. Liked it!" PTs explained that at first they looked at themselves, "body language and mannerism." "I looked at my posture, my body language," indicated another. "I focused on how I looked, but after a few minutes I focused on the teaching aspect of the video," said another. Only one of the participants indicated that, "Having the camera there made me feel uncomfortable." These comments were similar to those obtained by Fadde et al., (2009).

When talking about the strengths of videotaping participants agreed that videotaping allowed them to observe students' behavior. "I was able to observe the entire class'

behavior,” wrote one. Subjects also felt strong about videotaping been a great tool to help identify movement. “Allowed me to observe my positioning,” “I got to see me walking around scanning the class,” said another.

Mainly all PTs agreed that through videotape they had the ability to identify their time management. “I would have not been able to identify certain criteria (e.g., Time Mgmt.) without taping,” “I got to focus on time management,” “It allowed me to study my classroom management skills.” were some of the comments.

On the negative side of the videotaping experience were the comments related to lack of sound. “Several videos had no sound due to microphone malfunction,” “The sound sometimes disappeared.” These were similar problems to those mentioned by Ebsworth, Feknous, Loyet, and Zimmerman (2004). Other negative comments were, “It is time consuming watching all the videos,” and “Students knew there was a camera and misbehaved right in front of it.”

Overall the participants felt videotaping was an efficient tool for feedback and reflection of their teaching experiences. One of the PTs called it “One of the best forms for feedback and reflection as we can self-analyze our teachings. Better than just having someone telling you about how you did.” Others made comments such as, “By watching the videotape you can remember things about your teaching that might have slipped your mind otherwise,” “You can create your own checklist and look for things like greeting students, clear instructions, demos, etc.” “You can identify a specific event in order to increase teaching effectiveness,” commented another participant.

Discussion and Conclusions

With mean scores above 4 out of 5 on their Videotape Self-Assessment, PTs seemed to have benefited from their FEs to develop and enhance teaching skills such as the use of learning strategies, organization and creating learning environment. Having experienced teaching opportunities over a 5-week period seems to have helped PTs, which is aligned with Gurvitch and Metzler (2009), findings. They suggested that PTs attained a mastery experience in the form of successful teaching performance in authentic environments provided in FEs.

Low numbers in the Videotape Self-Assessment were expected as PTs were developing as teachers, but PTs felt strongly about their teaching skills and ability to create an appropriate learning environment for their students. It is possible that the 5-week field experience, which are designed to develop good teaching practice by providing hands-on experience (Gable, Kiekel & Hunt, 2009), did allow PTs to improve their performance as they gained confidence in their ability and role of educating students (Arnett & Freeburg, 2008).

The findings of this study were supportive of the use of videotaping and computer analysis in FEs as a tool to provide feedback to PTs and to help them improve on their teaching and reflective skills. The results are aligned with findings obtained by Benton-Kupper (2001), whose participants indicated that they were able to gain insight into their individual teaching techniques through videotaping and found it to be a positive component to the

teaching experience and King (2008) who found that after several reflections PTs felt that a visual record of their teaching inspired them to reflect more critically and to focus on the teaching skills more than just their appearance.

The information obtained in this study is valuable to PETE programs. It is supportive of FEs and the use of videotaping as part of the process of developing future professionals. After evaluating the comments made by the participants of this study, it is suggested that PETE programs continue to integrate technology during the FEs, which is a vital part of teacher education programs (Pease, 1989), allowing PTs the opportunity to gain practical teaching experience prior to formal student teaching (Larson, 2005).

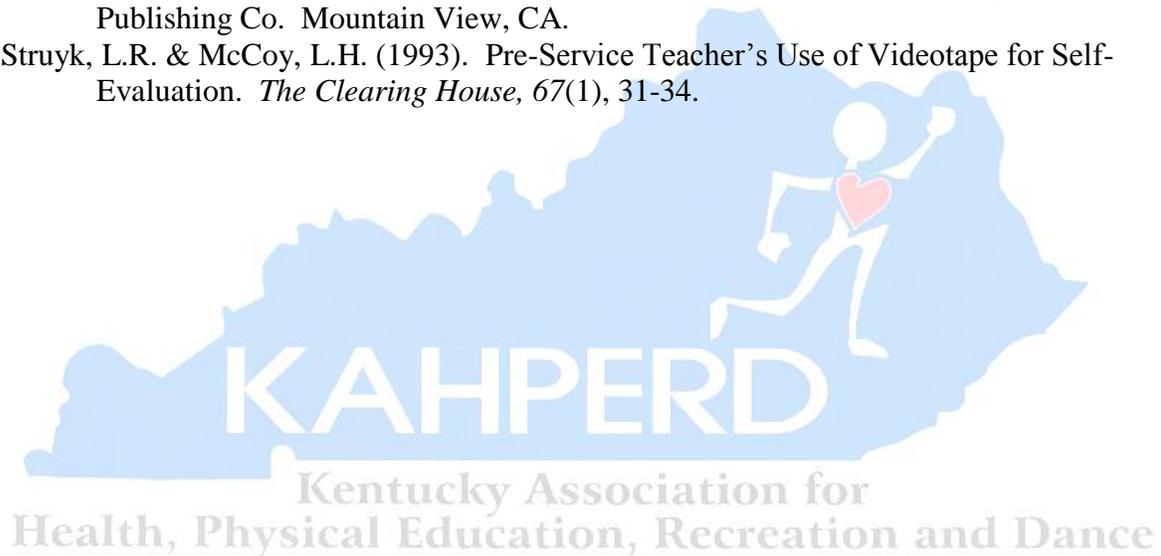
The use of videotaping and computer analysis should be incorporated into FEs as a means of visual feedback to develop and improve PTs ability to reflect on their teaching. Reflections of videotaped teaching samples hold the potential for assisting PTs in their professional development (Jensen et al., 1994) and PTs who become comfortable and understand the process and the value of video-based self analysis will continue to use video, as they become in-service teachers (Struyk & McCoy, 1993), to support personal and professional development as reflective practitioners (Fadde, et al., 2009).

However, in the future, PETE programs should provide their students with clearer instructions and practice using the videotaping and computer analysis technology for reflection before going out on FEs as suggested by Santagata et al. (2005), who indicated that the use of video as a form of feedback for teachers needs to be accompanied by explicit guidance on how to focus PTs attention. This will allow PTs to concentrate on improving a specific area rather than trying to deal with several areas at once (Struyk & McCoy, 1993).

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“Seven Habits of Highly Effective Exercisers” – The Older Adult

James Larkin, Eastern Kentucky University

John Ferguson, Eastern Kentucky University

Introduction

Behaviors associated with health promotion, such as exercise and physical activity, are notoriously resistant to planned recruitment interventions (Susser, 1995). According to the report, *Physical activity and health: A report of the Surgeon General* (U.S. Department of Health and Human Services, 1996), one important goal for the nation is to develop ways to recruit participants to exercise programs or to encourage physical activity. Dr. Karl Stoedefalke, founder of the American College of Sports Medicine, stated that exercise professionals must study and learn what factors motivate older adults to engage in regular exercise (Council on Aging and Adult Development, 2000). By understanding the factors related to physical activity status in seniors, it is possible to develop more effective interventions for promoting regular physical activity (King, 2001). Some of the factors related to participation in physical activity in older adults are addressed in the following seven categories.

Personal Incentives (What’s In It for Me?)

Personal incentives are the positive outcomes related to a behavior that an individual finds attractive as a result of engaging in that behavior (Maehr, 1984; Maehr & Braskamp, 1986). Personal incentives account for whether or not someone decides to do one behavior instead of another. There are constructs from other theories that parallel the construct of personal incentives: (a) outcome expectations from Bandura's (1986) social cognitive theory, (b) perceived benefits from Rosenstock's (1974) health belief model, (c) evaluation of positive outcomes from Fishbein and Ajzens's (1975) theory of reasoned action, and (d) intrinsic or extrinsic rewards from Roger's (1975) protection motivation theory. Using exercise as an illustration, it is proposed that numerous personal incentives from exercise would be conducive to greater participation.

Bandura (1986) stated, “The higher the incentive value people attach to certain outcomes, the more effort they will expend if they judge themselves capable of obtaining them” (p. 357). According to O’Brien-Cousins (2003), active older adults (versus inactive) anticipated positive outcomes from their participation in physical activity programs. Smith and Storandt (1997) concluded that reasons older adults exercised, compared to non-exercisers, were to improve mood, reduce stress, and to feel better physically. One potential reason for feeling better from exercise in older adults may be better sleep quality (Conn, 2001). Hays and Clark (1999) found that 54% of people over age 70 believe “exercise can make you less tired.” People who are sedentary are more likely to experience symptoms of depression (Ruuskanen & Ruoppila, 1995). A literature review by Fox (1999), showed exercise lowers state and trait anxiety, improves self-perceptions and self-

esteem, and can treat depression. Depression has a dramatic negative impact on the perceived health status of older people (Bryant, Beck, & Fairclough, 2000). Fortunately, exercise is very effective in treating depression and is as effective as drugs, psychotherapy, or behavioral interventions (Craft & Landers, 1998). Depressed older adults were more likely to adhere to exercise than others due to the associated mood improvement they received (Ruuskanen & Ruoppila, 1995). According to Lampinen and Heikkinen (1999), depressive symptoms in older people decreased with an increase in the amount of exercise they performed.

King (2001) reported a desire to improve one's fitness level and appearance were motives for older adults to engage in physical activity. Likewise, appearance issues about body weight and posture were motives for half of the older adults interviewed (Grossman & Stewart, 2003). Smith and Storandt (1997) concluded reasons older adults exercised, compared to older non-exercisers, was "to lose or maintain weight," "to gain weight/muscle," and "to improve appearance." Fortunately, muscle tissue is capable of adapting to resistance exercise in older adults (Taaffe, Duret, Wheeler, & Marcus, 1999).

For older people, health benefits and maintaining one's mobility and independence are important incentives to exercise. Westerhof, Katzko, Dittmann-Kohli, and Hayslip (2001) found that among older adults dependence upon family, friends, or nursing homes is feared whereas autonomy is desired. Independence and the ability to exercise were important incentives for older people and contributed dramatically to their self-perceptions of health (Bryant, Beck, & Fairclough, 2000; Conn, 2001). Recruitment interventions need to effectively communicate this relationship to older adults, but especially to those in the older age groups who are most vulnerable to disability and institutionalization (Heath & Fentem, 1997). Exercise has been found to dramatically improve cardiovascular health in older adults (Hakim et al., 1999). The risk of heart attack is lower in master endurance athletes who have been involved in long-term training compared to their sedentary counterparts (Kujala, Sorna, Kaprio, Koskenvuo, & Karjalainen, 1999).

Human beings are social, need to belong, and need to affiliate with others because it is a fundamental human characteristic (Baumeister & Leary, 1995). Conn (2001) reported 87% of older women believed a good social life was a direct consequence of being a physically active individual. Duncan, Travis and McAuley (1995) found older people believed the aging process could lead to fewer social contacts and that exercise, via mall walking, met a social need for companionship and provided a strong sense of community. Smith and Storandt (1997) found one of the reasons older adults exercised, compared to non-exercisers, was "to be with friends/socialize." According to Stead, Wimbush, Eadie, and Teer (1997), the older population is more likely to engage in exercise for "social rewards" than for health reasons. Ultimately, to help increase exercise participation in older adults, the benefits of exercise simply need to be communicated to them (Dunlap & Barry, 1999).

Sense of Self-Perceptions (How Do I Really Feel?)

Sense of self-perceptions are the self-referent thoughts and beliefs one has about themselves (Maehr, 1984; Maehr & Braskamp, 1986). The MPI (Tappe, 1992) utilizes

several constructs from other related theories as subcomponents underlying sense of self-perceptions. These subcomponents are described below.

#1 - Perceived Susceptibility. (Could This Really Happen to Me?)

Perceived susceptibility is an individual's perception of vulnerability or chance of acquiring a particular disease or health problem (Becker & Maiman, 1975). Bandura (1997) stated, "Perceived physical threats provide the motive for health action" (p. 283). When the perceived severity of disease condition is rated as high and one believes they are susceptible to the disease, then the perceived threat leads to motivation for health action. Using exercise as an illustration, it is proposed that a perceived susceptibility to a severe form of hypokinetic disease such as cardiovascular disease would be conducive to greater participation in exercise.

Health and fitness professionals must teach seniors that even small increases in activity, especially in sedentary people, can lead to decreases in cardiovascular disease and premature death (Dunn et al., 1999). According to King (2001), a public health approach that reaches out to the public to initiate increases in exercise among the older adult population is indicated. According to Reger et al. (2002), mass media campaigns have been effective in increasing the number of exercise walkers in intervention communities by 23% versus comparison communities. It is recommended by the Task Force on Community Preventive Services (2002) that community-wide campaigns with ongoing high visibility deliver messages to the older population to increase awareness about the dangers of sedentarism (including cardiovascular disease) combined with the positive effects of exercise and physical activity.

#2 - Goal Directedness. (I'll Do It Tomorrow!)

According to Maehr (Maehr, 1984; Maehr & Braskamp, 1986), goal directedness is the tendency to set a goal, delay gratification, and conform one's behavior to attain that goal. Goal directedness within the MPI resembles and is analogous to the construct of self-motivation (Dishman, Ickes, & Morgan, 1980).

Self-motivation is an integral factor in exercise compliance and physical activity level among older adults (Council on Aging and Adult Development, 2000; DiPietro, 2001).

To enhance motivation and commitment to exercise, the following techniques have been proven to be effective: goal setting; contracting; use of logs or diaries; establishing social support for exercise; use of self-reward and positive self-talk; problem solving; and relapse prevention (Dunlap & Barry, 1999; Grossman & Stewart, 2003; & Task Force on Community Preventive Services, 2002). An ideal time period to use such motivational tactics should be during the first 3 months of an exercise program because 50% of all dropouts occur during that time (Ecclestone, Myers, & Paterson, 1998). Continued adherence and long-term maintenance of exercise programs can be accomplished through individually adapted health behavior change programs that are tailored to an individual's schedule, interests, and readiness stage (Task Force on Community Preventive Services, 2002; & U.S. Preventive Services Task Force, 2002). Interventions can be done one on

one, in groups, by telephone, or via other media. Ecclestone, Myers, and Paterson (1998) has shown that addressing individual preferences such as time of day and scheduling issues regarding exercise are important factors as far as adherence and dropout are concerned.

#3 - Sense of Support. (I'll Do It, If You Will!)

Sense of support is the perception of whether other people are willing and able to offer support (Sarason, Sarason, & Pierce, 1990). It is analogous to the construct of social support (Dishman, Sallis, & Orenstein, 1985). Social support was defined by Antonucci and Jackson (1990) as interactions with other people that include at least one of the following: (a) *Affect* - love, admiration, or respect, (b) *Affirmation* - agreement about the rightness of a behavior or point of view, or (c) *Aid* - assistance given in the form of time, information, advice, money, or things.

Interventions to increase familial social support networks are recommended (King, 2001; Task Force on Community Preventive Services, 2002; U.S. Preventive Services Task Force, 2002). Interventions should build, strengthen, and maintain support for physical activity in older adults (Resnick, Orwig, Magaziner, & Wynne, 2002). Supporters should be invited to observe or attend exercise sessions to see what takes place and to understand the goals of the exercise regimen. Interventions should create new social networks or recognize existing networks involving spouses/family, close friends, churches, or workplaces and promote physical activity through “contracts” or “buddy” systems within these networks (Task Force on Community Preventive Services, 2002). For older adults lacking support, recruitment interventions should address issues of isolation or loneliness and communicate that exercising is a way to meet new friends and foster new relationships.

#4 - Perceived Norm (Is Anyone Else Doing This?)

Perceived norm is one's perception of peer beliefs, attitudes, and peer involvement in certain behaviors (Perkins & Berkowitz, 1986). Other related constructs include subjective norm (Fishbein & Ajzen, 1975) and Maehr's second facet of self-identity, which pertains to one's acceptance and knowledge of goals of peers within one's social circle (Maehr, 1984; Maehr & Braskamp, 1986).

To enhance perceived norm, programs that target older people need to convey that the activities were designed for and are performed by seniors (Duncan, Travis, & McAuley, 1995). According to McPherson (1994), physically active older adults should act as role models or “experts” for those who are inactive and pass on knowledge in order to train novices to obtain similar attitudes and skills in physical activity self-regulation. Recruitment interventions need to convey that physical activities are designed for and performed by older adult peers (Duncan, Travis, & McAuley, 1995). High visibility community-wide campaigns and mass media interventions displaying billboards, commercials, and posters of older adults could also enhance the perceived norm of the older population as being active (Reger et al., 2002; Task Force on Community Preventive Services, 2002; & U.S. Preventive Services Task Force, 2002). According to Hardcastle

and Taylor (2001), the importance of social norms and 'acting your age' has not been thoroughly examined for various demographic groups and needs further study.

#5 - Locus of Control (Can I Really Change?)

Locus of control is one's perception of control over outcomes related to a behavior (Maehr, 1984; Maehr & Braskamp, 1986). An internal locus of control is a belief that one can control the outcomes in their lives, whereas an external locus of control is a belief that control is out of his/her hands (Rotter, 1966). Self-reliance, a similar construct, is the belief about the source of one's destiny (DeCharms, 1968). DeCharms stated, "The entrepreneurial spirit of achievement emphasizes self-reliance and personal responsibility, the taking of calculated risks, careful planning and checking of progress with constant emphasis on the careful use of one's own skill and the conservation of time" (p.230).

Bell, Quandt, Arcury, McDonald, and Vitolins (2002) found that older adults with an internal locus of control for preventive health behaviors (including exercise) were more likely to consider their health to be excellent or good. Additionally, older adults who perceived their health to be controlled by "chance" or "powerful others" were more likely to be less educated. According to Hawkins, Duncan, and McDermott (1988), health related locus of control was positively associated with current and past participation in physical activity. If adults had an external locus of control or saw health outcomes as "out of their hands," they could conceivably cease involvement in health-related behaviors and increase their likelihood for needed medical treatment (Lynch et al., 1992).

#6 - Self-Efficacy / Sense of Competence (Can I Really Do This?)

The terms self efficacy and sense of competence are related in that they both pertain to the belief about whether or not someone feels capable of successfully executing a behavior (Bandura, 1997; Tappe, 1992). According to Bandura (1997), self-efficacy is the perception of one's ability to successfully carry out "subskills" of a behavior, whereas sense of competence is the perception of one's "overall" ability to carry out a behavior. Self-efficacy is influenced by four primary sources of information including: (1) social/verbal persuasion, (2) past performance accomplishments, (3) social modeling, (4) physiologic states of arousal (Bandura, 1997). According to Bandura, self-efficacy can be both a determinant and a consequence of participation in exercise.

McAuley and Blissmer (2000) reported that self-efficacy was greatly increased by participation in exercise within both old and young adults and within both clinical and healthy populations. Age was negatively associated to exercise-related self-efficacy levels for all exercises other than walking (King, 2001). According to McAuley, Jerome, Marquez, Elavsky, and Blissmer (2003), self-efficacy to overcome barriers to exercise in older adults grew during the first 2 months of an exercise program but declined at 4 and 6 months. Initial levels of exercise self-efficacy predicted future exercise participation in older adults during the first 6 months of an exercise program (King, 2001). It was found that self-efficacy was a good predictor of long-term exercise adherence in older people (King, Haskell, Young, Oka, & Stefanick, 1995). Wilcox and Storandt (1996) showed that

women who exercised had higher self-efficacy scores than sedentary women. Hays and Clark (1999) found that low levels of confidence in one's physical abilities was more of a barrier to exercise in older adults compared to younger adults, and in older women compared to older men. It also was found that older women evaluated their efficacy for exercise based upon a perception of their ability as defined via health, age, and previous skill levels (O'Brien-Cousins, 1997). A lack of past experience with physically active pursuits was associated with less participation in physical activity especially in older women (King, 2001). Unfortunately, there are not enough physically active older adults to serve as role models for sedentary older adults (Robert Wood Johnson Foundation, 2001).

#7 - Sense of Acceptance (I Am Who I Am!)

Sense of acceptance is the perception or belief that one is appreciated for who they are, and worthy of acceptance from others (Sarason, Sarason, & Pierce, 1990). This construct is related to Maehr's construct of self-identity which is defined as one's perceptions of affiliation to significant others and/or groups of people (Maehr, 1984; Maehr & Braskamp, 1986).

Sense of Self Perceptions according to Tappe's (1992) MPI are made up of (a) perceived susceptibility, (b) goal-directedness, (c) sense of support, (d) perceived norm, (e) locus of control (f) sense of competence, (g) sense of acceptance, and/or self-efficacy. Using exercise and physical activity as an illustration, it is proposed that sense of self perceptions conducive to engagement in physical activity/exercise would include the following: high perceived susceptibility of acquiring disease due to lack of exercise, high exercise-related goal directedness, high sense of support for exercising, a perceived norm embracing exercise, high internal locus of control, high levels of self efficacy or competence for exercise, and a positive sense of acceptance from others.

Future Thoughts

It is possible to develop more effective interventions for promoting regular physical activity and exercise behaviors in older adults by gaining an understanding of the complex motives and factors related to the physical activity status in seniors, (King, 2001). Unfortunately, few exercise-based studies have focused solely on older adults and their motivations behind physical fitness or physical activity (King, 2001). More research efforts are needed to study factors that would motivate the senior population to adopt a healthy lifestyle.

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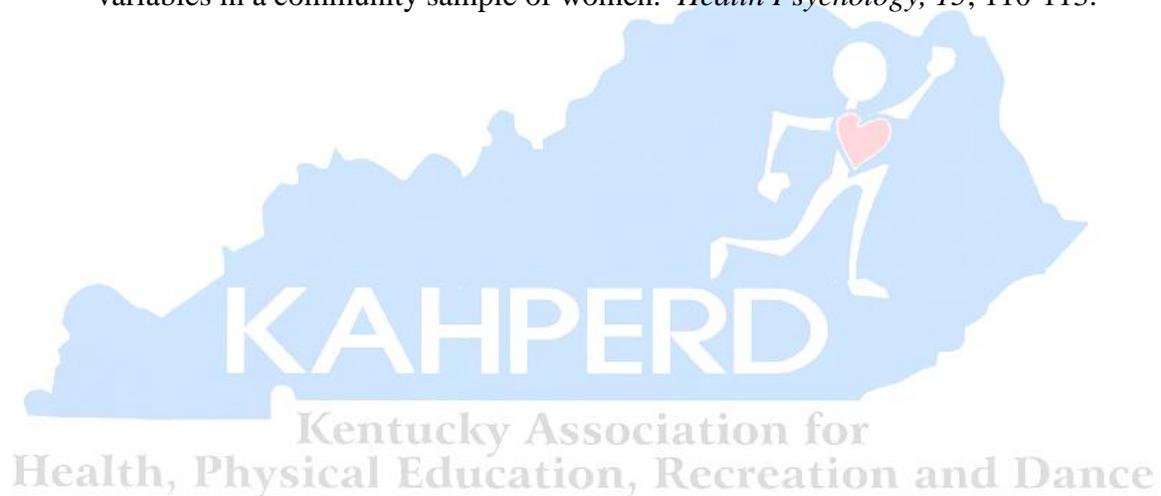
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Breaking through the Time Barrier: Clearing the Path to Healthy Behaviors

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Abstract

Behavior and health are inextricably intertwined. To optimize health, lifestyle choices need to include positive health behaviors. However, adopting positive health behaviors often involves changing habits. The purpose of this study was to identify what factors students perceive as obstacles to adopting and maintaining healthy behaviors. An assignment for students enrolled in a general education health course at a regional university was created to track a 6 week self-selected behavior change. One hundred and thirteen randomly selected behavior-change papers from approximately 1,240 project papers completed in 2008/2009 were analyzed. Data were organized into themes based on the behaviors targeted and the potential barriers students cited as standing in their way of reaching their behavior change goal. The behaviors most frequently selected for change were: the amount of physical activity ($n= 47, 41.6\%$), smoking cessation ($n=18, 16\%$), nutrition ($n=17, 15\%$), and drinking more water ($n=14, 12.4\%$). One barrier to change was reported across all these behaviors: time management. Even though factors influencing specific behaviors may vary, time management is common to the change process. Study results support the need to expand coverage of time management strategies in health education classes.

Introduction

While all may realize the benefits of exercising, eating fruits and vegetables, reducing stress in our lives, or practicing other healthy behaviors, the transition to healthy behaviors is not always easy. Numerous health behavior theories and models have been developed to help us conceptualize patterns seen in health behavior change. These theories acknowledge that there are factors that influence undertaking a desired behavior. One of the oldest models is still used today: the Health Belief Model. One of the building blocks, or constructs, for this model includes the idea of “perceived barriers” which is defined as the “belief about the tangible and psychological costs of the advised action” (Champion & Skinner, 2008, p.48). Many other models and theories include constructs related to perceived barriers or factors that stand in the way of behavior change. The Precaution Adoption Theory has “beliefs about difficulty”, while the Theory of Planned Behavior has a “perceived power” construct that addresses the “perceived effect of each condition in making behavioral performance difficult or easy” (Montano & Kasprzyk, 2008, p.75). The Health Belief Model also includes a “self-efficacy” construct which addresses the “confidence in one’s ability to take action.” (Champion & Skinner, 2008, p.48) Often that confidence to take action increases when perceived barriers decrease which exemplifies the

interrelatedness of the constructs. Addressing the actual barriers that stand in the way of behavior change is one strategy to increase self-efficacy which ultimately increases the likelihood of successful behavior change. Eliminating barriers that get in the way of positive health behaviors increases the chance that healthy behaviors will be maintained. In order to ensure and monitor a healthy life style, this study identified the factors students perceive as barriers to adopting and maintaining healthy behaviors. Recognizing these obstacles is the first step in developing strategies to successfully establish positive health habits.

Methods

This study was approved by the Institutional Review Board at the authors' institution. Data were obtained from papers written by students as part of course work required in a university general education health course. These papers reported the planning and execution details of a 6 week self-selected behavior change project. Information extracted from the behavior change project were: the personal health behavior that the student selected to change, the description of specific perceived barriers to changing the selected behavior, how the student planned to deal with those barriers, and whether or not they intended to continue the new behavior after the project was completed. Instructors recognized the importance of the Health Belief Model construct of perceived barriers when creating the assignment and gave instructions for the student paper to include both a description of what specific factors might stand in the way of reaching the behavior change goal and a discussion of how the student planned to deal with the perceived barriers.

Participants

One hundred and twenty-seven randomly selected papers from approximately 1,240 students enrolled in a general education health course at a regional university in 2008/2009 were reviewed. Fourteen papers were eliminated from analysis since they included multiple behaviors instead of tracking only one behavior as specified in the project instructions; one hundred and thirteen papers were included in the analysis.

Data analysis

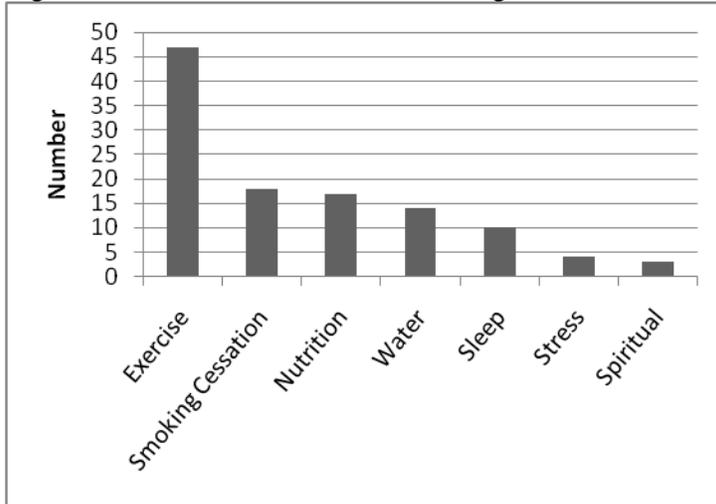
Data were organized into themes based on the behaviors targeted. Potential barriers students cited as standing in their way of reaching their desired behavior change goal, the strategies to overcome those barriers, and information about the student's intention to continue the new behavior were extracted from the papers. Frequencies were calculated for each category of behavior selected for change, for each barrier reported and for the intention to continue the new behavior. Strategies to overcome the barriers were grouped by theme.

Results

Behaviors for Change

Behaviors most frequently selected for change are shown in Figure 1. The most frequently selected behavior to change was the amount of physical activity (n= 47, 41.6%), followed by smoking cessation (n=18, 16%), nutrition (n=17, 15%), drinking more water/less soda (n=14, 12.4%), changing the amount of sleep (n=10, 8.9%), the amount of stress (n=4, 3.5%), and the level of spirituality (n=3, 2.6%).

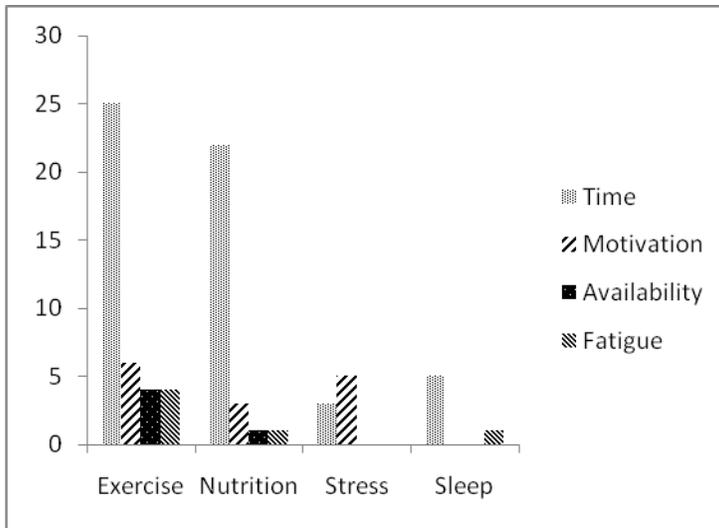
Figure 1. Behaviors Selected for Change



Barriers

Frequencies were calculated for the barriers to the top four behaviors selected for change. Barriers to increasing the amount of physical activity or exercise were time (n=25), motivation (n=22), availability of places to exercise (n=3), and fatigue (n=5). Reported barriers to improving nutrition were: time (n=6), motivation (n=3) and availability of nutritious foods (n=5). Barriers to reducing stress included: time (n=4) and motivation (n=1). Barriers listed for changing the amount of sleep received were: time (n=4) and motivation (n=1). Figure 2 shows the relative frequencies of barriers by behavior.

Figure 2. Barriers Reported by Behavior



Strategies to overcome barriers

Samples of strategies identified by students to overcome perceived barriers are listed in Table 1. Some strategies were specific to the behavior selected for change while others were more generic. Several strategies addressed the need for time management.

Table 1. Strategies Listed by Students to Overcome the Perceived Barriers

•	Learn to not put working out at the end of the list of things to do
•	Keep in mind the health benefits of exercise
•	Turn off life at a decent hour - Be in bed before 11pm - set a time to go to bed
•	Limit time watching TV & using the computer
•	Wake up earlier
•	Prepare lunch the night before
•	Exercise with friends to not miss out socially
•	Keep a schedule and workout the same time daily
•	Schedule workouts right in the middle of the day
•	Use posted note reminders
•	Exercise at 24 hr. gym at apartment
•	Create consistent time for exercise
•	Tell friends cannot party with them
•	Work exercise time into family schedule

Intentions to continue new behavior

Only four students stated that they did not plan to continue their new behavior after the 6 week project was over. Thirteen students did not address whether they would continue or

not. Approximately eighty-six percent (86.5%) stated that they planned to continue the new behavior after the project was completed.

Discussion

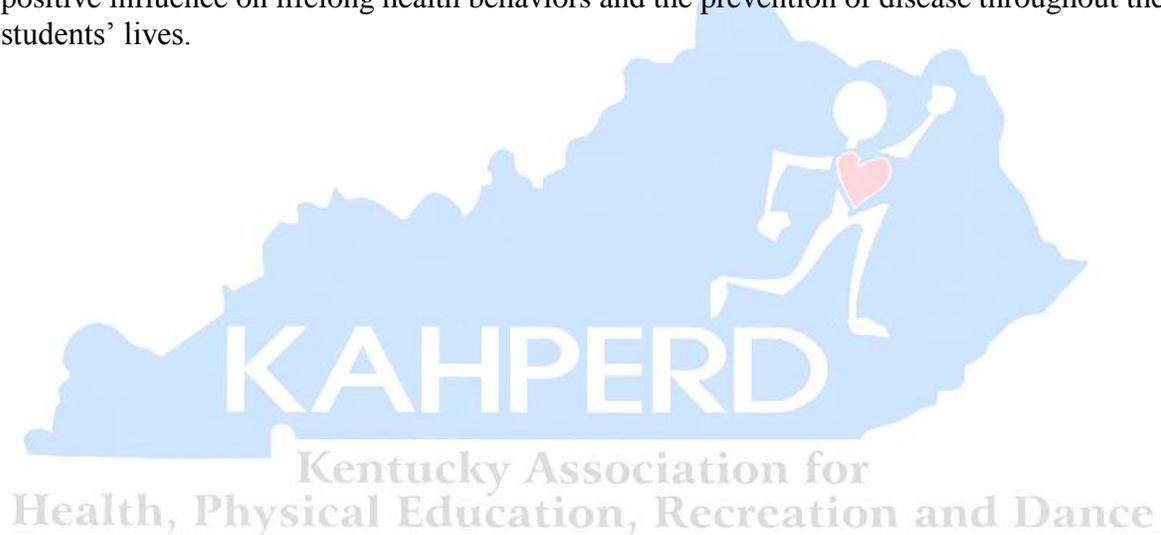
The relationship between behavior and health is very complex. One barrier to change was reported across all the top behaviors selected for change: time management. Even though factors influencing specific behaviors may vary, time management is common to the change process. Appropriate allocation of time is often identified as a problem for college students. It may be the first opportunity for some students to make decisions on their own as to where or how they should spend their time. Juggling course work, family commitments, jobs, and social events, can be difficult. Students trying to overcome the time barrier may wonder, “How do I find the time to exercise, or, how do I find the time to get enough sleep”. Several studies have addressed the association between the perceived barrier of “lack of time” and health behavior (Gatewood et al., 2002; Von Ah, Ebert, Ngamvitroj, Park & Kang, 2003). Since time was consistently reported as a perceived barrier for all types of behavior change, integrating time management strategies into health education classes may give students one of the most important tools needed to incorporate healthy behaviors into their schedules. Time is sometimes thought of as a tangible object as is illustrated with the common expressions of “finding time”, “making time”, or even “stealing time”. “Actually, time - perhaps the most valuable commodity of all – is never created by humans, nor is it found” (Henson, 1999, p. 10). Students only have 24 hours in a day, so they need to prioritize which activities will fill the time they have. Students need the tools to help them decide how to use their discretionary time; they may not be aware of the amount of time they actually have. Hanson and colleagues used time diaries to determine where students spend their personal time. Their study found that students spend an average of 23 hours per week attending and studying for classes while they recorded approximately 14 hours per week texting and 6 hours per week talking on the phone (Hanson, Drumheller, Mallard, McKee & Schlegel, 2011). Similar results were found by Nois, Philhours & Hudson in their 2006 study investigating how students spend their time. While students may attribute their lack of time to academic or work commitments, the study suggests that other activities such as watching TV and other entertainment accounted for approximately 24.53 hours per week on average. Other studies have reported comparable findings (National Survey of Student Engagement, 2003). Making a list of priorities is an excellent way for students to determine what will fill the time they have.

Conclusions

The Health Belief Model construct of “perceived barriers” has long been reported to be one of the most powerful predictors of preventive health behavior (Janz & Becker, 1984). Students in the study were aware that there are barriers that may stand in their way to healthy behaviors, but they also realized there are strategies to overcome those barriers. This study has identified some of those perceived barriers and what strategies students recognize as being available to overcome them. Translating that knowledge into action is a challenge. Many of the strategies listed in student papers involved practical ways to prioritize discretionary time. Over 86% of students expressed their desire to continue their

new behavior. Maintaining good health habits is in the student's best interest. Research has shown a positive association between health status and academic success. (DeBerard, Spielmans, & Julka, 2004). Although there has been little research on the association between health and student retention, health has been linked to student GPA and higher academic GPA has been linked to student retention (Becker et al., 2009; DeBerard et al., 2004). More evidence-based studies should be done that include health-related measures and how they affect student retention and academic success.

Health habits learned in college have a large impact on the habits the students will have as adults (Keating, Guan, Pinerro, & Bridges, 2005; Perman & Vakius, 1997). Positive health behaviors can have a significant effect on preventing or delaying the onset of chronic diseases as adults. Health and wellness classes taken during college may give students the incentive to change negative behaviors; maintaining healthy behaviors will necessitate continued efforts for good time management. Overcoming the time barrier should open the path to action. This study's results support expanding coverage of time management strategies in health education classes. Learning how to allocate time in college may have a positive influence on lifelong health behaviors and the prevention of disease throughout the students' lives.



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Thinking and Problem Solving during Physical Education

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Introduction

Critical thinking and problem solving are highly valued in the commonwealth of Kentucky. There are six goal statements set forth in the Kentucky Education Reform Act of 1990 and stated in Kentucky's Learning Goals and Academic Expectations. These goals are Kentucky's vision for what students should know and be able to do as a result of school experiences. Goal 5 states: "Students shall develop their abilities to think and solve problems in school situations and in a variety of situations they will encounter in life" (Kentucky Department of Education, 2011).

During the school day, day in and day out, students are told what to do. How often are they provided opportunities to think, reason, and problem solve, especially during physical education classes? Some teaching styles lend themselves more naturally to problem solving. However, the author argues that any teaching style or philosophically driven program can provide students opportunities to think and problem solve. Teachers can incorporate critical thinking and problem solving into any lesson or lesson focus regardless the model or curricular approach. Models include but are not limited to movement education/skill theme, fitness (health related), games for understanding, sport education, adventure education, interdisciplinary (academic integration), personal and social responsibility, or multi-activity approach. For brief summaries including first hand references and the origination of the eight aforementioned curriculum models please refer to the Siedentop (2009) reference.

Teachers can implement problem solving and thinking during physical education classes, despite any teaching model used. The author chose content areas thought familiar to many teachers (P – 12) in order to help teachers make links to the concept of using problem solving during physical education classes. Teachers are encouraged to use the ideas offered and as inspiration to create ideas in any content area regardless of the model. Seven content areas illustrate how implementation can work: 1) skill, 2) traditional games, 3) games for understanding, 4) adventure education, 5) fitness, 6) dance, and 7) gymnastics. Table 1 illustrates numerous ideas in chosen content areas for teachers to provide thinking and problem solving opportunities for students.

Examples in Thinking & Problem Solving in Content Areas

1) Skill

Learning from the movement education approach originally brought to America from England, teachers ask students multitudes of questions to allow them to think and solve problems. Others teach movement terminology by using a direct approach – telling students what to do (Graham, Holt/Hale, Parker, 2010). However, movement education (in its purest form) uses questions to guide students to solve problems. Teachers can guide students

towards a final solution whatever the content. We can use that questioning framework within any content area.

Transitioning from a familiar area as in teaching a skill whether from the model of the skill theme approach or simply teaching a skill in a traditional sense, students can be challenged to think. For example, instead of telling students to pass a ball to self ten times using forearms (as in volleyball self hits) ask students to find various ways to strike the ball up using body parts keeping the ball in control near them until the stop signal is given. Students might use various body parts and control the ball in ways we would not think of, but they will find ways to solve the problem. The teacher can slowly guide students toward using forearms for volleyball passing if the lesson focus is learning how to pass a volleyball using flat and straight arms, but let's give students some time to think, explore, and solve problems in the process.

Thinking and problem solving can occur during an instant activity, warm-up time, or throughout an entire lesson. Surely it takes longer to let students explore and it is quicker and oftentimes more efficient to tell students what to do – that is why we do that as teachers. However, providing opportunities for thinking and problem solving is also important.

2) Traditional game (unit)

In a middle or high school unit in soccer, hockey, basketball, ultimate Frisbee, handball etc., the teacher asks students to design a passing play to move the object forward on offence, toward the goal (target). Students can work with partners, small groups, or a team format. The teacher can use a critical thinking question as the warm-up or hook to get students interested in the topic, and then teach the plan for the day. The teacher can also try play, teach, play where students play the activity, think about what they need to do better, and come up with “plays” or strategies near the end of the lesson as a way to close the class for the day. In a game such as disc golf, a teacher might ask students to discover ways to make the disc travel from right to left, left to right, low to high or high to low. Whether incorporating problem solving at the start, middle, or end of a lesson, teachers are providing time for students to think and solve problems within the physical education class period.

3) Adventure Education (Starting a fire)

A teacher might be teaching youngsters to light a fire or pitch a tent in an adventure education program. Some fire starting techniques might be more efficient than others might; however, there are many different ways to make fire without flints and matches. Teachers can ask students to explore various ideas to create friction in order to get a fire started. Although it might take longer for students to learn, they might retain lifelong information because they learned at a higher level of thinking and processed the information into long term memory stores.

4) Games for Understanding (moving to get open without the ball)

In a games for understanding philosophical approach, a teacher might be teaching a lesson in the area of invasion games teaching students “how to move to get open” or ‘off the ball’ movement (without the ball in ones hand). In such circumstances, teachers ask students to “find various ways to create space to get open so the passer ‘wants’ to throw the ball to you”. After exploring various ways, have students choose their favorite ways or find the best two ways that seem to work every time. In other words, challenge students to a competent strategy solution.

Throughout the lesson, guide the students toward the solution sought or teach them directly the game strategy in the plan of the day. Again, problem solving and thinking can be incorporated as an instant activity, during the main lesson or near the end of a lesson after students are taught the concept of the day. Individual teachers must make these decisions. Once again, it takes time for students to think and solve problems. They won’t be as quick or efficient as a teacher might like, but how long might they remember their “moving to get open” strategy?

5) Fitness

A teacher might ask students to think about the playground they use at school, home or in the park; then ask them to brainstorm ten different things they could do while playing that might help them build upper body strength. Better yet, teachers can take youngsters to the playground and ask them to explore safely, within the rules, ten different activities they can do that might help them use their upper body strength. In a high school class, teachers can ask students to come up with ten different lifts that might increase upper body strength before teaching particular lifts. Or, the obvious, have students design individual plans to increase upper body strength (any fitness concept) by the end of a six week training program. Many teachers already use these ideas mentioned in the fitness area.

6) Dance

Within the content area of dance, students can think and problem solve most easily by creating their own dances. Students can explore and combine various dance steps to create their own dance within parameters set by the teacher, using movement terminology set by the teacher. For example, the student must use three different levels, travel in three different pathways, travel in three different directions, use three different locomotor skills and the dance must be 32 beats long, have a clear beginning and ending and be repeatable. Students have created machine, ice-skating, baseball, sport, celebration, weather, action-reaction, book character, movie theme, mime, statue, cartoon dances. For dance creation, there are many themes for one to choose.

Within traditional or specific dance genres, such as; Latin, West African, hip-hop, folk, etc., teachers miss opportunities for problem solving believing they must teach the dance the traditional way. For a test that might be true; but, teachers can provide students with opportunities for creativity, thinking, and problem solving by simply asking them to create their own dance within the genre after some traditional steps are taught. For example, after the teacher teaches square dancing steps and terminology such as swing your partner, DO

SA DO, forward and back, promenade, swing, allemande, circle, star, etc., the teacher can ask students to create their own square dance within the structure set by the teacher whether it is by number of beats, length of time, or to a specific music recording. Whether it is Folk, Latin, or West African dance, students can create their own dance moves or dances and enjoy doing so.

7) Gymnastics Content

When students create their own routines, gymnastics content lends itself well to using problem solving and critical thinking just as dance does. If teachers prefer to teach gymnastics skills first from a traditional perspective, then students can learn the skills first and create their own routines using problem solving and critical thinking skills later.

From a purely educational gymnastics perspective, teachers ask students to solve problems from the beginning focusing on four primary areas: balance, rolling, step-like actions and flight. For example, a teacher might say to students, “can you find five different ways to roll across your mat?” Let students think, explore and solve the problem. Then teachers can provide questions to guide students, such as: “Can you find three different ways to travel across your mat? Can you find three different poses to start as a beginning position? Explore three different ways to pose for your ending. Now pick your favorite beginning. Practice your beginning with different rolling motions. Try to find a good beginning that flows into your roll in a smooth way. Practice your beginning with one rolling motion, and add one locomotor or traveling skill. Now put it all together with a clear beginning, rolling motion, traveling or step-like action and clear ending.”

If teachers have gymnastics type apparatus, students can also explore getting onto and off equipment using safe techniques and landings. Teachers might also ask students to explore balancing using the equipment and rotation around the equipment. Any exploration activities become higher level thinking and problem solving time for students. In the middle and high school grades (or higher skilled students), sequences are usually longer and might contain combination skills depending on individual student’s skill level. Safety always comes first.

Conclusions

Parts of or entire physical activity lesson can be devoted to thinking and problem solving. Teachers might create a special day of the week for problem solving. Teachers might use a little problem solving in every lesson they teach; or some teachers might use problem solving strategies when teaching educational gymnastics or dance only. Some teachers might be pure movement educators and use problem solving strategies in everything they teach. Despite the teaching philosophy, it is important to find opportunities for students to think and problem solve during physical education class just as they do in math class.

Giving students time to think, explore, create and solve problems typically takes more time than direct teaching (telling students what to do). Therefore, teachers must be critical thinkers figuring out where it makes sense to use problem solving and higher order

thinking within individual programs. Time is precious and accountability is high. Admittedly, it is more efficient to tell students what to do, but, how long do students remember and when will they have opportunity to think critically throughout their school day?

There are two critical concepts here: 1) Learning theory clearly indicates people remember information longer when information is stored in long term memory. Struggling with solving a problem, exploring ideas, and creating solutions is highly regarded as one way to manipulate information in a manner conducive to long term storage and retrieval. 2) Thinking and problem solving are highly valued and necessary skills in any democratic society (the purpose of American public school education) including the commonwealth of Kentucky as stated in the introduction. Those are two logical reasons for teachers to provide opportunities for students to think and solve problems during physical education (it is good for them). Another good reason to explore opportunities for student thinking is that higher order questioning techniques used by teachers is highly valued as judged throughout the teaching standards during evaluations probably because of points one and two.

Finally, teachers can reach special populations using creativity and problem solving. Creative students who sometimes do not excel at traditional activities can thrive during these lessons. Challenges set up as questions to solve problems or work out a solution also tend to peak interest from gifted students. Sometimes gifted students are the least active students, yet get busy being active trying to figure things out, explore and find multiple solutions to such problems. In addition, many special education students really love this approach maybe because there is no single standard, no one right answer, but, many equally good solutions to a problem. An open ended strategy allows for high rates of success and high participation rates, oftentimes from those least likely to participate. For those reasons alone, it might be advisable for teachers to try incorporating critical thinking and problem solving during physical education classes where possible, whether within familiar content areas or within content areas never tried before. Can you think of places within your physical education program where you can challenge your students to use higher order thinking through exploration, creativity, problem solving?

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The Potential New Role of the Physical Education Specialist

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Introduction

Over the past few years, physical education has lost credibility in the light of budget cuts and purpose for overall academic outcomes.¹ A faint outlook on the future of the physical education professional has even brought the thought of “extinction” to the conversation. There is currently a great opportunity for the subject area of physical education to completely transform its face and content. This opportunity began when the U.S. Congress passed legislation in 2004, Public Law 108-265: Section 204, insisting all schools receiving federally funded school meal programs must develop wellness policies by the 2006-2007 academic year.² This legislation received further support by The 2010 Surgeon General’s Vision for a Healthy and Fit Nation.³ The Surgeon General’s report encourages the need for an efficient restructuring of our population’s daily lifestyles to incorporate more physical activity.³ Many people within communities may play major roles that could greatly benefit the health of the nation. Among those individuals, physical education professionals are centrally located in a community to obtain the necessary resources and play a pivotal role in school health. With a recent rise in overweight children, paralleled with Type II diabetes, this mandate has arrived at the most appropriate moment.

From a broad point of view, schools and school boards share responsibility for improving academics. If children have poor wellness, this may affect their academic performance. Exercise plays a prominent role in improved cognitive function.⁴⁻⁵ The National Association for Sport and Physical Education (NASPE), which is a governing body to physical education, stated that the national physical activity recommendation of sixty minutes is not being met by today’s children and adolescents.⁶ Unfortunately, many youths have not engaged in the recommended amount of physical activity. To combat this problem, a new position must be established to reform the traditional role and tasks of physical education professional. The authors believe that the newly created position, physical education specialists (PE Specialists) would be the best candidate to carry out the tasks/functions of improving school children’s health. Those tasks and functions may include:

- Inspiring the intrinsic motivation of children’s involvement in physical activities;
- Addressing a spectrum of health issues;
- Developing nutritional lesson plans in physical education classes;
- Collaborating with other teachers on physical activity ideas in and out of the classroom;
- Suggesting alternative food choices with higher nutrient density to students and faculty;
- Being an advocate and professional members of national and/or state organizations that promote public health; and
- Demonstrating a healthy personal lifestyle that influences other individuals⁷

Beyond the regular job description of a PE teacher, PE Specialist can execute the aforementioned tasks to ensure a healthier lifestyle for all students and school employees. (Figure 1) In the following paragraphs, the authors will further address the roles of the PE Specialist and introduce available support options which may assist them to execute their responsibilities.

The Role of the Physical Education Specialist

Physical education specialist (PE specialist) would be the title of the new aforementioned profession that assists in changing the face of school wellness/health. The main job responsibility of this specialist is to teach physical education and all that applies. Furthermore, promoting school wellness and even community wellness may also enter the realm of responsibilities. There are many ways that the PE specialist can accomplish the aforementioned duties. First, the implementation of physical activity and nutrition programs would be essential tasks to manage and carry out. Second, physical activity can be coordinated throughout the school day with recruiting the help of other teachers and staff. Third, PE Specialists can establish activities during the before- and after-school hours, integrate exercise into the classrooms, create more active learning, and help students build healthy behaviors throughout each day. The physical education specialist can assist with healthy eating habits, selecting nutrient dense foods that provide fuel for the human body and incorporate learning about healthy nutritional choices into different lesson plans. This is a preliminary list of potential roles which the newly created position of PE Specialist might fulfill.

Another path within the PE specialist's tasks may include wellness for faculty and staff within the district. A blend of corporate fitness within a school district would provide exercise opportunities for school employees to gain personal health benefits. Organizational wellness is a growing need and the physical education specialist is in position to initiate and coordinate this dimension of school district wellness⁷.

Health, Physical Education, Recreation and Dance

Additional responsibilities of the PE Specialist may also include the coordination of physical activity efforts outside of the school's operational hours. This person would become a reliable resource to other staff members, students, and community members for facility use and events. By pursuing professional certifications, such as certified personal trainer, Zumba instructor, or nutrition counselor, the PE specialist may become a valuable asset to the community. PE specialist can create professional development courses, workshops, and seminars for organizations. In addition, PE specialists could schedule community physical activity options after school. Incentives could be provided to employees to enhance corporate wellness adherence. The PE specialist can also recruit certified professionals to conduct activity classes. Optional health related classes or workshops, such as smoking cessation, nutritional guidance, weight loss and others can be offered in classroom settings within the school year round. Depending on the specificity of professional certifications achieved by the PE specialist, they may teach aerobics classes, educational classes, or even offer health-related fitness testing.

School Wellness Committee Preparation

In order to ensure the success of the PE Specialists' multiple tasks, the key is to maintain good communication with administrators in the school district, community, and with state and national organizations. Involvement in the school wellness committee should be included in the job description of the PE specialist from day one. The Wellness Councils of America (WELLCOA) is a valuable source of information for wellness program development. WELCOA offers effective insight on how to develop a successful worksite wellness team. Each of these steps is designed to provide an organization with guidance from established wellness programs. Results or outcomes are evaluated and analyzed to determine the strength or influence of a wellness program on its clientele. Through the support of a wellness team, instead of relying on an individuals' ability, the strength and longevity of the program will be further prolonged. The PE specialist can adopt the listed components in Table 1 to create a successful wellness team and monitor personal strengths and/or weaknesses. There are ten components for building successful teams.⁸

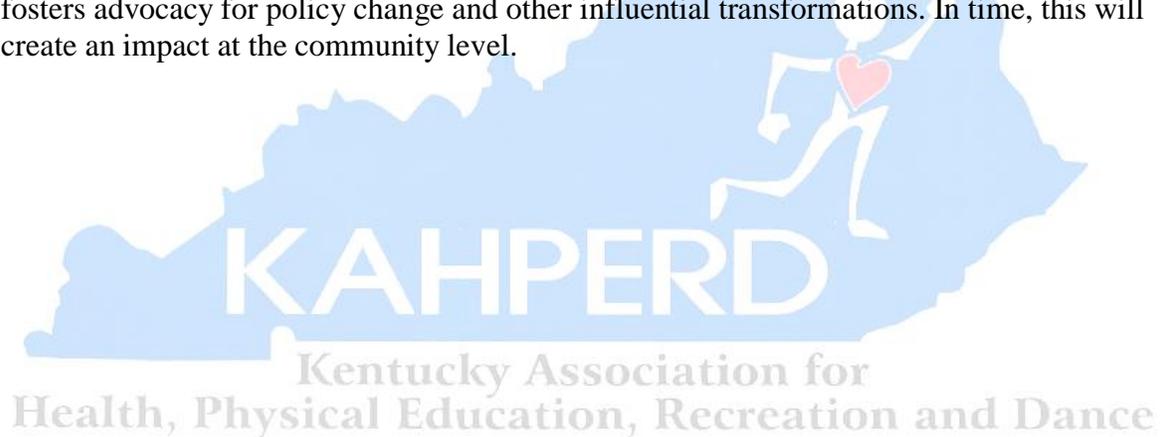
Table 1. Ten Components for Building a Successful Wellness Committee

1. Formally appointing members
2. Writing wellness responsibilities into job descriptions
3. Promoting wellness team throughout the school district
4. Strong leadership!
5. Wellness team represents employees from all schools, board, and community
6. Hold regular meetings
7. Develop a formal agenda
8. Keep minutes each meeting and post to members
9. Communicate, Communicate, & Communicate!
10. Participate in continuing education

Based on the main components of building a successful wellness team, the first step for the PE specialist is to join the school wellness team, if not already a member. The PE specialist should approach the school wellness team and commit their expertise, time, and service to wellness success. The PE specialist's job description will include presenting information to the wellness committee and creating new physical and health education policies. The promotion of the health and wellness mission, vision, and initiatives is essential and begins with strong leadership. Regular meetings with a formal agenda can occur once per week if necessary, yet it is common to meet monthly. As a team member and advocate for fitness, they can develop a physical activity committee to delegate other responsibilities. This subcommittee will be responsible for planning events to promote physical activity. Therefore, it is a necessity that the PE specialist becomes involved and takes a leading role with wellness committee issues. An ongoing dialogue (communication) with the school's administrator is also a key component to effectiveness. Overall, the PE specialist will become an active leader for the school wellness committee and advocate policy changes.

Conclusion

A PE specialist may be the answer to redefining the traditional role known as the physical educator. This new position is to be established at the school level, grow into the district level, expand to the community level, and beyond. Various new responsibilities are created with the restructuring of a position, yet the possible positive benefits in assisting childhood obesity and improving corporate wellness provide a rationale to move in this direction. Applicable steps can be taken today by the PE specialist becoming a member of a school/district wellness committee. Once established as a wellness member, the PE specialist can begin multiple tasks such as, recording students' participation in the recommended 150 minutes (elementary) to 225 minutes (middle to high school) per week of physical activity.² The National Association of State Boards of Education announced this recommendation in 2000 to encourage and promote fitness through policy.² The PE specialist will be required to put in essential time outside of their normal hours and pursue professional development beyond school reimbursement to succeed in this new role and contribute to societal health advancements. The precise step-by-step path for a PE specialist to follow is based on the initial recommendations in this document and the needs of the school/school district. The potential for growth in this career will depend on utilization of various professional resources, professional development, corporate fitness, school needs, and other community aspects that address childhood obesity. Establishing the physical education specialist in a leadership position within schools, communities, and beyond, fosters advocacy for policy change and other influential transformations. In time, this will create an impact at the community level.



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(Note: The reference style of this article is not the traditional APA format.)



Figure 1: Responsible Roles of a Physical Educator

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Relationship Marketing in Intercollegiate Athletics

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Abstract

Cultivating committed customers has become a central focus within the marketing of intercollegiate athletics. Relationship marketing within this realm is about bringing fans' experiences closer to the game and bringing them even closer as vested partners. Unlike other entities, athletics departments must move their product even in the face of adversity, i.e. losing records, difficult economic conditions (Jackowski, 2006). Within most athletic programs, men's football and basketball are the only revenue-generating entities. The ability of these sports to produce substantial income is often instrumental in the sustainability of non-revenue producing sports (James & Ross, 2004). Although winning and losing records are important to fans, being able to provide a memorable and enjoyable fan experience through effective relationship marketing will keep them involved, even in the down years. Intercollegiate athletic organizations are now focusing on long-term consumer retention and are incorporating a variety of management techniques to establish, maintain and enhance positive customer relationships (Dick, Gillentine, Robinson, & Trail, 2003).

Keywords: relationship marketing, customer retention, sport consumption, customer trust

Introduction

"College sports are woven deeply into people's lives in university towns... College sports permeate these university communities as their culture revolves around these events, season by season; football in the fall, basketball and hockey in the winter, the NCAA tournaments in the spring" (Duderstadt, 2003, p. 3). James Duderstadt, (2003) former President of the University of Michigan, suggested there are many differences between "non-revenue" intercollegiate sports like volleyball, swimming, and soccer and "revenue generating" sports like football and basketball, which are part of the "entertainment business." Because each sport plays a different role in intercollegiate athletics, the strategies used to promote the sports may differ. Moreover, Trail, et.al (2003), suggests that marketing strategies should differ based upon the nature of the audience members' motives to attend intercollegiate athletic events. Although the promotion strategy may change, all athletic programs strive to build their fan base and increase the number of spectators at events. For that reason, relationship marketing may be an excellent approach for marketing all intercollegiate athletic sports.

Defining Relationship Marketing

Parvatiyar and Sheth (2000) defined relationship marketing as “the ongoing process of engaging in cooperative and collaborative activities and programs with immediate and end-user customers to create or enhance mutual economic value at reduced cost” (p. 9). In practice, relationship marketing is characterized by the attraction, development, and retention of customers. Although these definitions imply a long-term view of the consumer, current approaches to relationship marketing are varied and can take a very narrow perspective focusing on short-term behavioral components or can take a broader perspective emphasizing deeper, longer-term relationship goals (Parvatiyar & Sheth, 2000).

Hunt and Morgan (1994) stated, "Relationship marketing refers to all marketing activities directed toward establishing, developing, and maintaining successful relationship exchanges" (p. 22). Gordon (1998) provided a similar definition related to service marketing: "Relationship marketing is attracting, maintaining and - in multi-service organizations - enhancing customer relationships" (p. 25). These definitions both focus on long-term customer retention, which is ultimately reflected in repeat purchasing actions and the consumer moving toward levels of emotional attachment and relational attitudes (James & Ross, 2004). Athletics organizations should strive to develop this deeper level of relationship with their target markets. In order to facilitate the formation of profound relational affiliations, organizations must understand and implement a broad marketing perspective (Gok, 2007).

Relationship Marketing Perspectives

The narrow perspective of relationship marketing in sport uses a variety of marketing techniques to elicit repeat purchasing behavior, and often focuses on how many tickets have been sold or how much consumers have spent during an event (James & Ross, 2004). From this perspective, relationships are viewed as transactional and cannot be viewed as long-term (Gok, 2007). For some of the less mainstream sports, focusing on ticket sales or number of spectators is a likely first step in building a long-term relationship. Unless spectators and fans attend a sporting event, there is little likelihood that a long-term relationship can occur. In contrast, a broad approach attempts to understand consumers better to move beyond the current transaction and shallow repeat purchasing techniques to develop meaningful and beneficial relationships that are proactive, enduring, and interactive. These sport consumers are viewed as lifetime customers, and efforts must be made to thoroughly understand their wants, needs, and motivations (Gordon, 1998).

Sport Consumer Motivations

Over time, fans can become highly identified with the team, coaches, and players (Dick, et. al, 2003; Trail, et. al, 2003). Effective relationship marketing plans focus on and accentuate this identity. Sport marketing departments often provide times for fans to interact with the team or coach in order to facilitate building connections. However, the same plans may not work well for those who are merely spectators and do not identify with the program. If there is no intrinsic connection, marketers must develop a diverse strategy taking into account the varied motives for sport consumption (Bee & Kahle, 2006). Some of these motivations include: social needs, psychological needs, vicarious achievement, acquisition

of knowledge, aesthetics, social interactions, drama, escape, family, physical attractiveness of participants, and physical skill of participants (James & Ross, 2004). These consumer motivations can be further grouped into three categories influencing sport consumption: compliance, identification and internalization (Bee & Kahle, 2006; Kelman, 1961).

Categorical Influences of Sport Consumption

Of the three sport consumption categories, compliance is the most superficial level of motivational behavior, and results from either individual or group influences. The sport consumer gives into compliance because he or she gains a reward for a transactional exchange, or avoids some form of punishment. The consumer is typically seeking a favorable reaction from another person or group (Kelman; 1961). Examples of this type of motivational behavior include attending an athletics event, wearing team-related gear, or making financial donations at a certain level. Obtaining social and economic rewards and avoidance of embarrassment or ridicule are the basis for compliance behavior (Bee & Kahle, 2006).

Identification is defined as “the perceived overlap of one’s own self-concept with the identity of the sport organization, team, or player” (Bee & Kahle, 2006, p. 107; Kelman, 1961). The tendency for fans and spectators to bask in reflected glory (BIRG), where being associated with a program’s success becomes similar to personal success, and cut off reflected failure (CORF), where individuals distance themselves from unsuccessful programs, describes the identification process (Bee & Kahle, 2006; Cialdini, et. al, 1976). Duderstadt (2003) explains unacceptable behaviors by athletes (crime, violence, or drugs) or coaches (violence or violation of recruiting policies) can also lead to CORFing.

Internalization results when fan and spectator behavior is influenced through the creation of mutual trust and shared values. Internalization is the more enduring and long-term relational alternative. The rapport formed between athletics departments and their constituents based on internalization is consistent with the relational exchange perspective (Bee & Kahle, 2006). Kelman (1961) suggests that an alignment of values and enduring beliefs is one of the strongest antecedents for internalization. While compliance and identification motivators are viewed as transactional behavior, the more desired behavior of internalization by fans embodies the concept of relational exchange.

Transactional Versus Relational Exchanges

Current research supports the view of relationship marketing from the perspective that consumer relationships exist on a spectrum ranging from transactional to relational (Parvatiyar & Sheth, 2000). According to Egan and Harker (2006), transactional marketing’s primary focus is to fit the customer to the product. These exchanges depend on utilizing external factors as attractants, and assume consumers are available in unlimited supply (Egan & Harker, 2006).

Relational exchanges focus on cooperation and interactions resulting from shared values of both the consumer and the athletics organization (Parvatiyar & Sheth, 2000). Although it is recommended that organizations focus on both transactional and relational exchanges, the

transactional approach to relationship marketing is often seen as a less desirable, short-term solution (Parvatiyar & Sheth, 2000). In this situation, external or superficial rewards provide the major motivation to engage in an exchange relationship. Sport consumers have a high likelihood of discontinuing purchasing behavior or attending events when the rewards are reduced or eliminated (Bee & Kahle, 2006). These types of exchanges are still important to a sport marketing professional, because they serve as the initial step in moving customer relations from transactional to relational (Parvatiyar & Sheth, 2000).

Moving Sport Consumers from Transactional to Relational

It is important, from a marketing perspective, to identify which constituents an athletics department should be attempting to formulate relationships with. Palmer (1994) stated, “successful marketing should focus attention not just on how to gain new customers, but how to develop loyalty from those that an organization has previously and expensively gained” (p. 573). Many will agree that those who attend athletic events are one of the highest-ranking priority individuals of any sport organization (Jackowski, 2006). Understanding exactly who these persons are and their motivations for attendance will enable the creation of sustainable, long-term relationships, and further allow an organization to categorize these constituents. Within intercollegiate athletics, sport attendees can be subdivided into two diverse groups—fans and spectators. Sport marketers must understand this distinction in order to meet the wants and needs of both (Dick, et. al, 2003 & Trail, et. al, 2003).

Spectators are defined as those who attend sporting events simply to watch and observe (Dick, et. al, 2003; Sloan, 1989). Spectators want to see competitive games because they enjoy learning about the sport and watching the artistry and skill of the athletes (Dick, et. al, 2003; Pons, Mourali, & Nyeck, 2006; Trail, et. al, 2003). Spectators are more likely to attend a university or college’s athletic events if most of its games are against schools of similar ability (Craig, 2002) and if they have a quality experience based on price, accessibility, and accommodations (Trail, et. al, 2003).

A fan can be described as a sport enthusiast or devotee. Fandom can be broken into three categories: social, focused, and vested. The social fan has low team identification. They attend events to enjoy the socialization aspect, and care little about the outcome of the game. The benefits of being a social fan bring feelings of camaraderie, community and solidarity, along with great social status and self-esteem (Dionisio, et. at, 2008). The focused fan has a moderate level of identification and is attracted to some aspects of the sport. The vested fan maintains high emotional attachment to the team that extends over a long period of time. This fan is one who will make financial and time commitments to the program (Dick, et. al, 2003) that include purchasing licensed team products (Trail, et. al, 2003).

The fan category can be further dissected to include the fair-weather and the die-hard fan. Fair-weather fans are those who will support the team when they are successful, but will abandon the organization when it is losing. The die-hard fan stands by the team under both winning and losing circumstances (Dick, et. al, 2003). Categorizing those who attend

collegiate sporting events will enable the athletics department to design and deliver products that appeal to target market segmentations according to their motivation, thereby increasing overall revenue-generation. However, in continuing to progress relational exchanges, athletic organizations have begun to realize additional, non-monetary benefits of effective relationship marketing - enhanced customer trust, commitment and cooperation, and a philosophy of shared values (Gok, 2007).

Building Trust and Aligning Values

Several factors affect sport consumer attitudes and behavior toward relationship formation, such as commitment, involvement, trust, and shared values. Research has examined the important role of trust in long-term relationship development. Trust is influenced by shared values and is often viewed as a precursor to relationship commitment (Morgan & Hunt, 1994). Shared values can invoke the highest level of relationship commitment. In the context of sports marketing, shared values between sports consumers and sports organizations, teams, or players should lead to increased relationship commitment. When consumers enter into a relationship with an athletics program, that act can reflect the consumers' expectations and commitment to continue patronage regardless of the other choices available to them. If these expectations are consistently met, consumers are more likely to initiate or maintain a trusting relationship that fulfills their needs as well as satisfying those of the athletics department (Morgan & Hunt, 2004).

Some fans inherit a team through family ties just as they would inherit a family value. This can affect their continuation of support for a particular team. When attracting the devoted fan not a lot of circumstances will affect the teams support because they will generally have positive sustained behavior (Dionisio, et. at, 2008).

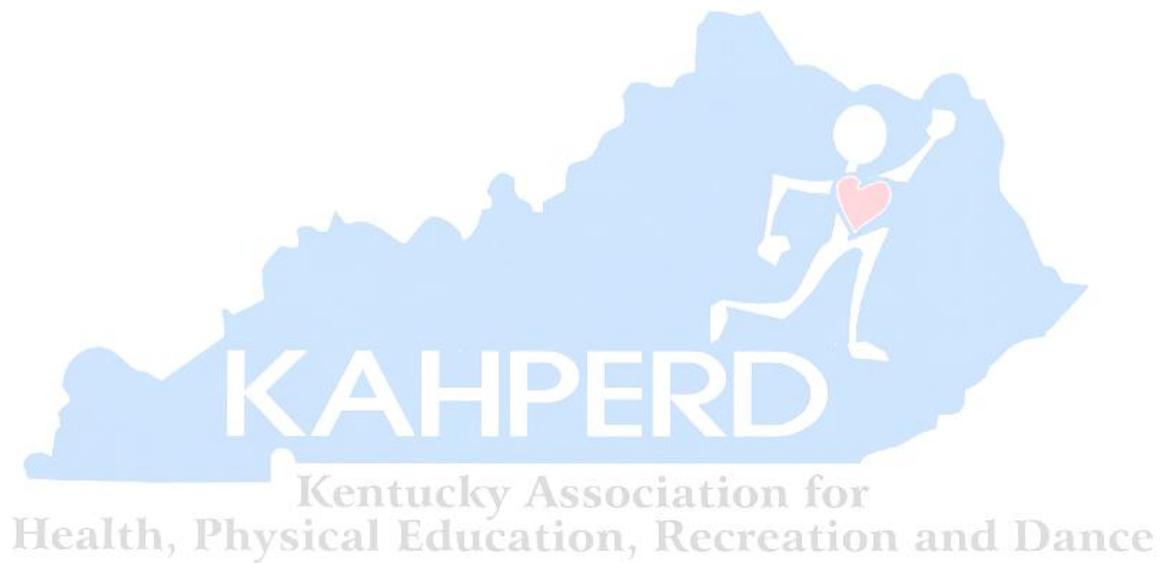
Implications and Conclusion

In the current intercollegiate environment, relationship marketing plays a predominant role between athletics departments and their primary customers—fans and spectators. Relationship marketing creates and sustains a network between the individual customer and the organization. Due to the ever-increasing cost of running an athletic program, sport marketers must, among other tactics, develop customer loyalty through relationship marketing. Building and maintaining internalized connections allows athletics departments to increase trust and commitment among their customers. Relationships are amongst the most important and powerful aspects of sports marketing. With this perspective, practitioners can begin to understand the basis, source, and motivation for the creation of such relationships, and can embark on fully integrating these concepts into departmental strategic plans.

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Are Football Players Headed for Trouble?

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Introduction

We've been hearing a lot lately about concussions in athletes, particularly football players. There are some interesting findings from Boston University scientists that question whether the dangers of football outweigh the risks, specifically to the brain.

Autopsies on former professional football players now deceased are showing gnarled masses of brown marks in the hippocampus, the area of the brain responsible for memory and learning. Those brown spots are abnormal nerve cells caused by concussions.

Case Studies

One of the scientists, Dr. Ann McKee presents as evidence, a slide of brain tissue from Wally Hilgenberg, a pro linebacker for the Detroit Lions and Minnesota Vikings in the '60s and '70s (McKee et al., 2010). Hilgenberg's brain had spent 16 years getting scrambled inside an NFL helmet, so much so that he was believed to have contracted ALS, known as Lou Gehrig's disease. He later died in 2008. McKee and her fellow researchers at BU's Center for the Study of Traumatic Encephalopathy now suspect that ALS was a misdiagnosis. Hilgenberg experienced muscle weakness and atrophy consistent with ALS, but McKee believes that the true culprit was chronic traumatic encephalopathy, or CTE.

Simply put, CTE is caused by too much banging of the head. Brain cells die, leading finally to a person's inability to control his own muscles. McKee and her colleagues speculate that even Gehrig himself may have actually suffered from CTE, rather than ALS.

What really brings the point home is McKee's presentation of a sample of brain tissue from another subject. What first appears to be a normal brain, white and smooth and the picture of health shows, upon closer examination, telltale brown spots in the frontal cortex. "You see areas like this where it's very distinctly abnormal," she states. "The damage isn't just restricted here; it's spreading all the way to neighboring parts of the brain." This brain, she adds, doesn't belong to an NFL player; it belongs to a young kid.

Concussions and Football

America and particularly the NFL have made a fundamental shift in the way it thinks about concussions and football. McKee and her colleagues have been largely responsible for that. Thanks to them, concussions are now considered serious business and probably responsible for problems such as CTA in later life.

McKee presented her research on Capitol Hill just over a year ago. Until then, the NFL had ignored or denied the violent effect professional football has on its players, essentially insisting that repeated blows to the head didn't affect players' health in later life. The

league had allowed players to return to the game after a concussion. Not any more. McKee's research showed that a person who has never looked at brain sections before to say, 'Oh, God, this is like night and day.' And because of that congressional testimony, the NFL has owned up and issued a memo prohibiting players from returning to a game during which they suffered a concussion.

According to experts, about 5 to 10 percent of high school football players will suffer concussions each season. Many will go undiagnosed because, like the pros, football's warrior ethic means they often try to play through the pain. More than 40 percent of concussed high schoolers return to games too soon, according to a recent study by the Nationwide Children's Hospital in Columbus, Ohio (Yard & Comstock, 2009).. And because children's brains are still developing, the brain trauma caused by a concussion can be much more harmful for a child than an adult.

Serious Health Risks Associated with Successive Head Trauma

The most serious risk is second-impact syndrome, an extremely rare but potentially fatal condition. In this condition, if a concussed player returns to play too soon, a second hit to the head—even a light one—may cause death. Each year, a handful of children nationwide die from second-impact syndrome.

A more common risk is post-concussive syndrome. Normally, a concussion takes up to three weeks to clear. However, if a second concussion occurs too soon after the first, recovery can take months. Post-concussion syndrome exacerbates ADD, ADHD, and depression as well. The condition is particularly troublesome for students because mental rest is vital to recovery. That means no reading.

The long term worry though is CTE. Unlike post-concussive syndrome, CTE is the result of accumulated hits to the head, whether concussive or not. The condition can lead to depression, mood swings, loss of memory and brain malfunction in later life. McKee has seen it in young brains too. One high-profile case was that of Owen Thomas, a University of Pennsylvania junior lineman who hanged himself in his apartment. An autopsy showed early stages of CTE in his brain and researchers suggested that it may have played a role in his suicide. Speculation is that he either played through concussions without telling anyone, or all of the run-of-the-mill hits he suffered from Pop Warner through Penn added up to CTE.

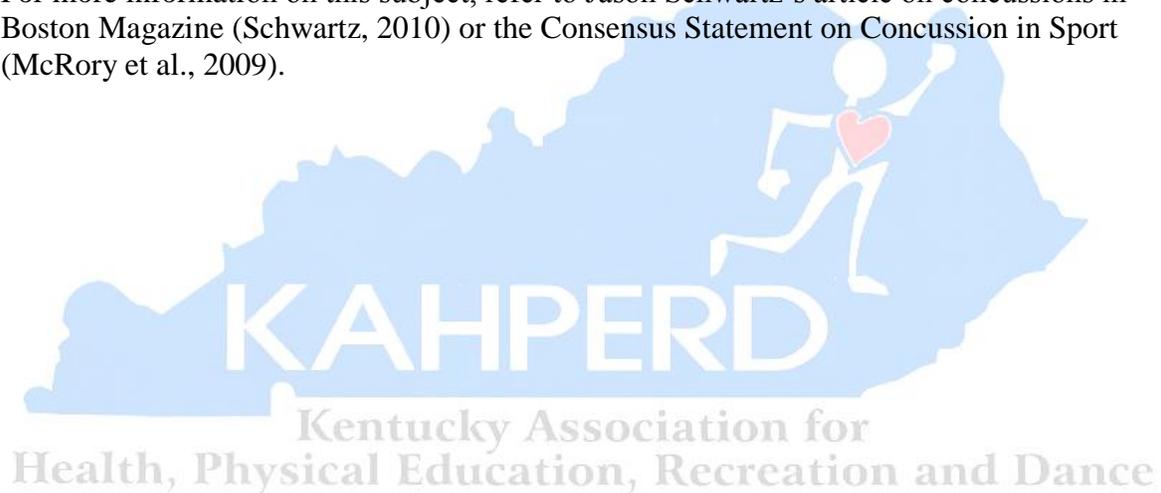
Establishing Safety Monitoring Measures

McKee's not ready to say that kids shouldn't play football. But she does caution that they should not play while concussed and that athletic programs need to spend more attention on player screening and diagnosis. Indeed, special training is needed to screen athletes accurately. According to Thomas Dodge, president-elect of Athletic Trainers of Massachusetts, the standard checklist of concussion symptoms is 25 items long but less than half the high schools in Massachusetts have them (McRory et al., 2008). Even more don't employ the services of an athletic trainer.

Perhaps the easiest—and cheapest—step would be for schools to implement neurocognitive testing: memory and reflex exercises to show whether an athlete has experienced a concussion. The most popular version is called the ImPACT test. It is designed to be given at the beginning of the season as a baseline measure. Then, if the athlete suffers a hit to the head, he or she is retested. If the results are worse, it's probably a concussion. When the results return to normal, the athlete can return to the field. ImPACT is non-invasive and can be administered by school nurses or athletic trainers. More importantly, its results show overly insistent players that they shouldn't be going back on the field.

Conclusion

McKee's research and the subsequent legislation mandating all concussed high school athletes get a physician's approval to return to play, and that players and coaches receive annual concussion education has started the larger conversation about the future of football itself. Perhaps the human body is not meant to absorb the types of hits they experience. Just because there's no blood on the outside, doesn't mean the body isn't hurting on the inside. For more information on this subject, refer to Jason Schwartz's article on concussions in Boston Magazine (Schwartz, 2010) or the Consensus Statement on Concussion in Sport (McRory et al., 2009).



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Dietary Supplement Perception and Behaviors among College Health and Fitness Majors

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Background

Dietary supplements (DS) represent a multi-billion dollar industry (Radimer, 2004). In 2008, an estimated 75,000 supplements were on the market with projections of this number continuing to rise (Coates, 2008). With the overwhelming number of products, it becomes increasingly difficult to stay abreast of scientific claims on the newest supplements. This wide range of supplements may be due to the broad definition of DS. In 1994, the Dietary Supplement Health and Education Act (DSHEA) defined DS as: “a product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following ingredients: a vitamin, a mineral, an herb or other botanical, an amino acid, a dietary substance for use by man to supplement the diet by increasing the total daily intake, or a concentrate, metabolite, constituent, extract, or combinations of these ingredients” and “are intended for ingestion in pill, capsule, or liquid form, cannot be represented for use as a conventional food or as the sole item of a meal or diet, and must be labeled as a ‘dietary supplement’” (USFDA, 2010). Examples of common dietary supplements include specific vitamins and minerals (i.e. Vitamin C, Calcium, Iron) as well as multi-vitamins and mineral combinations, omega 3 fatty acids, protein powder, Echinacea and St John’s Wort.

The Food and Drug Administration has some regulation over DS, however currently manufacturers of supplements are not required to demonstrate safety and efficacy prior to marketing the product to the consumer. Many DS are marketed to improve health and performance or prevent disease although there is a lack of sound research supporting these claims. Concerns about supplement fraud, safety in the form of adulteration, harm to the user, and negative interactions with other supplements and drugs are also issues for consideration (Cole & Fetrow 2003; Murphy, White, Park & Sharma 2007). In a report from the U.S. Government Accountability Office (2010) officials revealed several examples of consumer fraud where buyers misunderstood or believed claims by supplement marketers that were dangerous or deceptive and lacked scientific evidence.

The health and wellness field is well known for its role in promoting the use of supplements to the general population. Personal trainers and other health club personnel, nutritionists, coaches, and athletic trainers are each in a prime position and are often sought out to give advice on health and fitness to the general population. However, the increased risk of fraud and safety concerns associated with many supplements could lead professionals in this field to be faced with legal issues when recommending DS to a client. In a study by Blunt and King (2010), professionals in the health and wellness field,

including professors, trainers, and physical educators, were asked about their knowledge, attitudes and behaviors regarding DS use. Although two-thirds of the participants felt they were knowledgeable about DS, the majority did not feel they were qualified to give advice or prescribe DS. This contrasts with the opinion of trainers or coaches who recommend or sell DS to their athletes or clients. There is a lack of research on perception of DS safety, reasons for use, and sources of dietary supplement information in future health and wellness professionals. Since DS use begins in early adulthood, it is prudent to research use in the college-age population. Therefore, the purpose of this study was to better understand the perception and behaviors of dietary supplement use in health and wellness majors in a college population.

Methods

Subjects were defined as students from undergraduate classes in the Health Wellness and Human Performance (HWHP) department at a regional university in Kentucky. Human Subjects approval was obtained prior to implementing the study. A convenience sample was taken from four undergraduate courses taught through the HWHP department. This included three upper division classes with one required course from each of the three majors (exercise science, health promotion, and health and physical education) as well as one general education course. Subjects were asked to complete a questionnaire that was adapted from previously validated questionnaires on supplement use (CDC 2006; Duellman, Lukaszuk, Prawitz, & Brandenburg 2008). The questionnaire included items on personal supplement use, perceived safety of supplements, patterns of supplement recommendation, and where knowledge on supplements was retrieved. Basic demographic information was also collected including age, gender, major and anticipated future career. Perceived safety items were rated on a 5 point Likert-type scale (1=no risk and 5=high risk). The 22 perceived safety items demonstrated a high level of internal consistency (Cronbach's $\alpha = .91$). Additional items on demographics, supplement use, and patterns of recommendation were non-parametric in nature and included nominal response categories. Participation in the survey was voluntary and subjects gave consent by completing the questionnaire. Results were anonymous and no incentive was given for participation. The data was analyzed using SPSS 15.0.

Results

A total of 100 undergraduate students from HWHP classes participated in the study. Subjects consisted of 43 males and 57 females with ages ranging from 18-40. The majority of the subjects were upperclassmen (22% seniors, 50% juniors, 11% sophomores, 17% freshman) with 27% of the students classified as varsity athletes. When asked if they currently take or have taken a dietary supplement, 68% of the participants answered "yes". When participants were asked who they believed was qualified to administer supplement information, the majority stated that medical doctors (96%) and registered dietitians (85%) were the most qualified. When asked who they received advice from on dietary supplements, 44% of the participants answered they received their advice from a friend (non-health care provider), followed by medical doctor (29%) and relative who is not a health care provider (29%) (Table 1). When participants were asked where they received

their dietary supplement information, the majority (71%) collected information from the internet (see Table 2). Participants were asked to rate how safe they felt each supplement was on a scale of 1 to 5 (1 = no risk, 5 = very high risk) (Table 3). Weight loss supplements (mean 4.11) were rated the highest risk, followed by caffeine tabs (mean 3.69) and mega-dosing (mean 3.53). Vitamin and mineral combinations were rated the lowest risk (mean 1.34). No differences were found between athletes and non-athletes on how they rated the safety of 22 different supplements (p values ranged from .082 to .098).

Discussion and Conclusion

In the current study, a majority of participants (68%) have in the past or currently take a dietary supplement which is consistent with other studies examining similar populations and in a national opinion survey (Burns Schiller, Merrick & Wolf, 2004; Blendon, DesRoches, Benson, Brodie and Altman 2001). Although participants believed that health care professionals were the most qualified individuals to recommend dietary supplements, the majority did not acquire their information from these individuals. Participants acquired information from friends (non health care professionals) at 44%, followed by relatives (non health care professionals) and medical doctors both at 29%. This demonstrates a contradiction between who subjects believe are qualified to give advice on supplements and where they actually acquire this information. This may be due to the readily available information provided by friends and relatives and the difficulty associated with consulting a doctor or other health care provider for supplement advice. Also, it is plausible that since some people consider supplements to be safe and effective that subjects in the current study believed a doctor was not needed prior to taking them. Opinion of who is most qualified to deliver supplement information may vary with the population being sampled. In a study by Burns et. al. (2004), university athletes were asked where they obtained their nutrition and supplement information. Results indicated that primary sources included athletic trainers, strength coaches and registered dietitians. In a national survey in 2001, participants reported that they do not look to their physician for advice on supplements because they feel they are not knowledgeable and may have a bias against them. Both of these studies are in contrast to the current findings where the majority of students (96%) rated medical doctors as being qualified to deliver advice and much fewer rated athletic trainers (52%) and coaches (17%) as being qualified. Therefore more information is needed on a wide range of populations to determine who they believe is qualified to deliver supplement information.

Where individuals may be gathering their information on dietary supplements is an area of concern. The majority (71%) of subjects obtained their information about supplements through the internet. Since there is no regulation of information that can be posted on the internet, it cannot be determined if the sites accessed were sources of accurate and reliable information. Information from internet sources can range from unreliable sources (i.e. forums, blogs, and advertisements from the manufacturer) to research based sites that are generally considered accurate (i.e. university and government based sites, published articles, nutrition and supplement governing bodies). Students who are considering a new supplement need to understand how to appropriately research a supplement and make an informed decision on the benefit to risk ratio. Since supplements remain highly

unregulated, there is a risk of fraud as well as toxicity or drug interactions associated with their use. Therefore it is important to understand how to be an informed consumer of such products. Since many of the subjects plan to procure careers in the health and wellness field, it is imperative that they understand the professional and legal ramifications that are associated with recommending and selling these products.

When subjects were asked to rate perceived supplement safety, subjects rated vitamins, minerals, and several other natural constituents of foods such as fish oil and flaxseed as the substances with the least risk. Subjects rated weight loss supplements, stimulants, and other ergogenic aids as having the highest risk. Athletes may be exposed to more ergogenic aids which could alter perception. However, it is interesting to note that both athletes and non-athletes shared this pattern of perceived risk since no significant differences were found between the two groups. This pattern of perceived safety is in line with current research indicating vitamins and minerals posing minimal risk and weight loss supplements containing certain ingredient such as ephedra posing a much greater risk due to a number of adverse events being reported (Zacharias, Bland, Katke, Schauss, Conant, & Israelson, 2004). Since only broad categories of supplements were used, it is unclear if the brand of the substance would alter perception of safety. Also, future research should examine if there is a correlation between perceived safety and actually use of each product.

The current study was designed to begin to understand perceptions and knowledge of dietary supplements in future health and wellness professionals from a college population. Limitations of the current project include the self report nature of the questionnaire, self-selection of the sample and possible bias. Self-report questionnaires present issues with accurate recall of information. The sample was limited to opinions of students in one department and there was a limited scope to the questions. Since only students in HWHP classes were sampled, there may be a different trend outside of these majors since several students in the HWHP department have had classes that discuss supplement safety.

Future research plans include comparing attitudes and perceptions between health and wellness majors and majors outside of the health field, determining knowledge of participants on other dietary supplement issues (how regulated, researched), and to gather opinions of how supplements should be handled in health and wellness careers.

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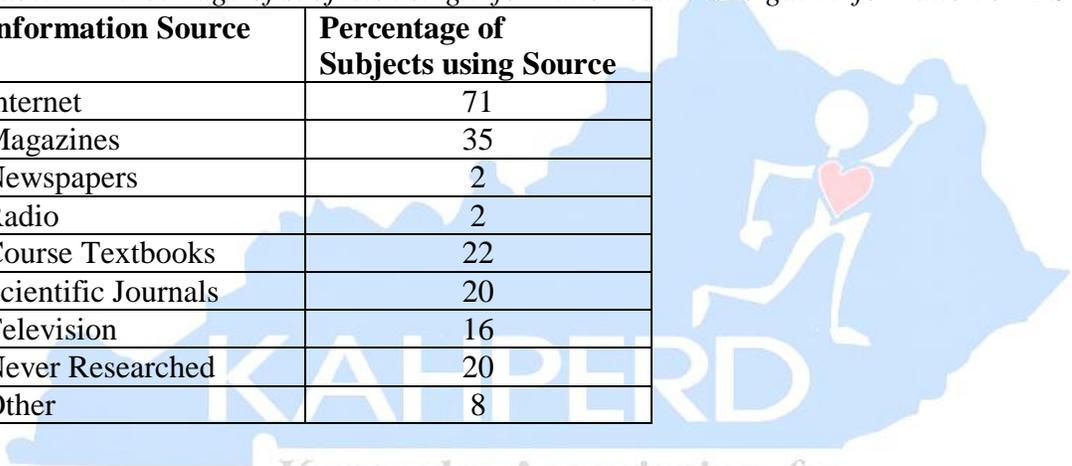
Table 1: Percentage of subjects receiving DS advice from each source and percentage of subjects who believe source is qualified to recommend DS

Source	Received	Qualified to
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	Advice	Recommend
Athletic Trainer	21	52
Coach	27	17
Friend- Health Care Professional	27	50
Friend- Non Healthcare	44	7
Health Club Personnel	9	16
Medical Doctor	29	96
Registered Dietitian	10	85
Registered Nurse	14	39
Professor	12	6
Relative- Healthcare Professional	17	50
Relative- Non Healthcare	29	2
Strength Coach	20	36
Other	13	2

Table 2: Percentage of subjects using information sources to gain information on DS

Information Source	Percentage of Subjects using Source
Internet	71
Magazines	35
Newspapers	2
Radio	2
Course Textbooks	22
Scientific Journals	20
Television	16
Never Researched	20
Other	8



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Table 3. Mean perceived safety (1= no risk 5= very high risk)

Supplement Type	Mean Score
Vitamin/mineral combination	1.3474
Fish oil	1.4699
Calcium	1.5287
Iron	1.8701
Flaxseed	1.9016
Zinc	1.9219
Antioxidants	1.9870
Glucosamine	2.1111
Glutamine	2.1148
Magnesium	2.1364
Amino acids	2.1774
Echniacea	2.1905
Coq10	2.3396
Protein powder	2.3810
Acai extract	2.4576
St John's Wort	2.6486
Creatine	2.9390
Nitric oxide	3.0339
Meal replacements	3.3088
Mega-dosing	3.5342
Caffeine tabs	3.6951
Weight loss	4.1149

