

# Using the PRECEDE-PROCEED Model to Increase Productivity in Health Education Faculty

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## Abstract

*In this new millennium, academic faculty are increasingly expected to “publish or perish.” Given that a model for helping scholars increase their publication productivity does not exist, the purpose of this paper is to propose the use of the PRECEDE-PROCEED model to facilitate increased scholarly productivity in health education faculty. It is the hope of the author that this paper will facilitate additional research in this area and start an academy-wide discussion about ways to increase scholarly productivity among our faculty.*

## Introduction

Scholarly productivity, as broadly defined, is the publication of peer-reviewed, data-based and/or theoretical journal articles, books, book chapters, and monographs. This definition of scholarly productivity varies greatly *within* and *between* colleges and universities and departments within health education. The expectations for number and type of publications, order of authorship, and number of authors on a paper may vary greatly, depending upon one’s institution and department. Even though expectations for scholarly productivity may vary, few can deny that successful scholarly productivity yields many rewards, including, but not limited to: prestige, tenure, and grant funding. While the definition of scholarly productivity is debatable, the rewards reaped through productive scholarship are not. Clearly, scholarly productivity reaps extensive rewards for anyone in higher education. Perhaps the important question to ask is not whether scholarly productivity is important in today’s climate of higher education—but whether faculty members can increase their current level of scholarly productivity.

Many papers have been written about the correlates of scholarly productivity in our field and in other fields. The majority of these papers describe behavioral and environmental factors that are related to high levels of scholarly productivity. Despite the plethora of research in this area, no one has summarized the material into a cogent model for increasing scholarly productivity in health education faculty. To continue to advance our field, to ensure that faculty are “carrying the torch” for future generations by conducting timely and innovative research, and to better understand scholarly activity specific to health education faculty, there is a need to develop and test a model for increasing scholarly productivity.

During the past year, I had the privilege of studying the behavioral and environmental characteristics of highly productive female and male scholars in a number of fields. Due to previously reported gender differences in scholarly productivity in other fields (Russell, 1991; Safrit, 1979 & 1984; Schuiteman & Knoppers, 1987), I specifically studied the behavioral and environmental characteristics of highly productive women scholars in health education and exercise science (Ransdell, Dinger, Beske & Cooke, in press; Ransdell, Dinger, Cooke & Beske, in press). I believe the information gleaned from this research endeavor is relevant to any faculty member in health education and to both genders.

Given that a model for facilitating an increase in scholarly productivity among health education faculty does not exist, the purpose of this paper is to propose the use of the PRECEDE-PROCEED model to facilitate increased scholarly productivity in faculty from health education. It is the hope of the author that this paper will facilitate additional research in this area and start a professional-wide discussion about ways to increase scholarly productivity among our faculty.

## What is the PRECEDE-PROCEED Model?

The PRECEDE-PROCEED model was developed as a planning framework from which health education and health promotion programs could be designed (Green, Kreuter, Deeds, and Partridge, 1980; Green & Kreuter, 1991). PRECEDE stands for “Predisposing, Reinforcing, and Enabling Factors in Educational Diagnosis and Evaluation.” *Predisposing factors* include knowledge, attitudes, beliefs, personal preferences, existing skills, and self-efficacy toward the desired behavior change. *Reinforcing factors* include factors that reward or reinforce the desired behavior change. *Enabling factors* are psychological/emotional or physical factors that facilitate motivation to change

behavior. The PRECEDE model is based on the premise that an educational diagnosis should precede an intervention just as a medical diagnosis precedes a treatment plan (Green et al., 1980).

Approximately ten years later, PROCEED, which stands for “policy, regulatory, and organizational constructs in educational and environmental development,” was added to the model. The PROCEED component of the model acknowledges the importance of environmental factors in determining behaviors. In summary, the model begins with the outcome of interest and the model is used to design an intervention for achieving the desired outcome.

Behavior change interventions, designed to help low-income individuals improve heart healthy behaviors (Paradis, O’Loughlin, Elliott, Masson, Renaud, Sacks-Silver, & Lampron, 1995) and prevent accidental injuries in children (Gielen & McDonald, 1997), have been developed using the PRECEDE-PROCEED model as a guideline. The PRECEDE-PROCEED model has also been proposed as an organizational framework for increasing youth physical activity (Welk, 1999). The usefulness of this approach lies in the fact that population and environmental characteristics and needs are considered in a proactive and systematic fashion prior to applying the model to behavior change. The model assumes that participants (e.g., faculty) will take an active part in defining their own problems and solutions and in establishing goals.

### **Use of the PRECEDE-PROCEED Model to Facilitate Increased Productivity in Health Education Faculty**

The PRECEDE-PROCEED model, which assumes that health behaviors are complex and multi-dimensional, consists of 9 phases (Gielen & McDonald, 1997). This section of the paper will describe each phase and translate it into a practical model for movement sciences faculty who are attempting to increase their level of scholarly productivity.

In the first phase, a *social diagnosis* is performed in an effort to help individuals identify their needs and desired quality of life. This is important because understanding an individual’s needs should help with the development of a “population specific” (and therefore effective) program for behavior change. Individuals who participate in this phase, analogous to a needs assessment, should feel more empowered to increase their current level of productivity. From a

practical standpoint, it is important for administrators to sit down with both junior and senior faculty and ask them what they need to be successful in scholarly endeavors. Additionally, it is helpful to ask about the desired level of success for each scholar.

During the second phase, an *epidemiological diagnosis* is performed. Epidemiology typically refers to the study of the distribution and determinants of health and disease. The correct analogy for the context of scholarly productivity is the study of the distribution and determinants of scholarly productivity within one’s college/university and/or department. Important site-specific questions to ask during an epidemiological diagnosis might include: What factors have contributed to scholarly productivity in highly productive faculty within this department? What factors have limited scholarly productivity in less productive faculty within this department? Are there more barriers than facilitators to scholarly productivity within a department? Because barriers to success can vary tremendously by gender, race, academic discipline or sub-discipline, and institution, individuals should carefully examine their own setting for the most important barriers to successful scholarship.

For the third step, a *behavioral and environmental diagnosis* is performed. The purpose of this step is to identify the behavioral and environmental correlates of scholarly productivity. *Behavioral correlates* are behaviors or lifestyles that contribute to high level scholarly productivity. *Environmental correlates* are social and physical factors that support scholarly endeavors. The delineation of these factors should first be accomplished with a thorough review of the literature. Table 1 presents a summary of the literature related to the behavioral and environmental factors that contribute to high level scholarly productivity.

The most frequently mentioned behavioral correlates of scholarly productivity were:

- self-motivation
- goal-orientation
- focus
- discipline
- perseverance
- a preference for research over other duties

Additional correlates that were important included being a supportive team player and completing promised work on time. Clearly, these behavioral correlates of scholarly productivity are similar to those required in business, law, medicine, and other professional fields. Perhaps the initial key to developing a plan for increasing scholarly productivity

among health education faculty is to hire individuals who possess such characteristics. Alternately, a department can develop ways to enhance the aforementioned behavioral characteristics. Some examples of specific activities that might address behavioral correlates of scholarly productivity include:

- figuring out things that motivate faculty to write and developing rewards for those who are successful with scholarly endeavors (e.g., reduced teaching loads, merit pay, bulletin board presentation of scholarship)
- establishing writing groups of faculty with similar research interests
- holding seminars about established correlates of scholarly productivity and ways to increase scholarly productivity within one's current academic setting

Environmental correlates of scholarly productivity should also be considered during this phase. Some of the most important (and malleable) ones, as specified in Table 1, included:

- a high level of faculty research activity
- graduate student and statistical or technical support
- securing research funding
- matching research and teaching interests
- having repeat class preparations
- placing departmental value on scholarship
- having regular contact with colleagues (and mentors)
- having talented collaborators
- having release time for research

Departments can maximize their attention to the environmental correlates of scholarly productivity by hiring instructor line personnel who can provide release time for faculty engaged in research, providing information about grant availability within an individuals area of expertise, matching research and teaching interests, encouraging faculty interaction, and facilitating contacts with colleagues, collaborators, and mentors.

Once these behavioral and environmental factors are delineated and discussed, the *relative importance* and *potential for change* for each factor should be weighted and a plan should be designed to address each component. Gielen and McDonald (1997) remind us of the importance of setting goals to achieve these desired outcomes. Specifically, they recommend specifying the desired behavioral impact (e.g., How much of what will be changed by when?) and the environmental change (e.g., Who will do how much of what by when?)

The fourth step, called an *educational and organizational diagnosis*, is to identify predisposing, reinforcing, and enabling factors that increase the likelihood that behavioral and environmental changes will occur. Figure 1 presents a summary of predisposing, reinforcing, enabling, and demographic factors that may affect scholarly productivity. In this context, *predisposing factors* include knowledge, attitudes, beliefs, personal preferences, existing skills, and self-efficacy related to scholarly productivity. During the analysis of predisposing factors, individuals should ask themselves: Am I able to increase scholarly productivity? (Do I have the knowledge, skills, and self-confidence to do it?), and Is it worth it? (What are my attitudes toward and beliefs about research and writing?)

*Reinforcing factors* include factors that reward or reinforce scholarly behavior. Some examples of reinforcing factors in the context of scholarly productivity include departmental culture, departmental assignment of roles and responsibilities, and mentor availability and influence. If these reinforcing factors are not currently in place, individuals and departments should strive to engage those factors such that they are supportive of increased scholarly productivity.

*Enabling factors* are emotional/psychological or physical factors that can increase scholarly productivity. Emotional enabling factors include motivation, perceived talent or self-efficacy, and perseverance. A basic principle of human motivation is that individuals seek to engage in activities in which they feel self-confident or self-efficacious. Thus, individuals with writing talent will likely feel more motivated to write than those who are not confident or those who have not been successful with writing endeavors. Departments should find ways to increase the confidence of all faculty in writing endeavors by teaching them to effectively deal with manuscript rejections (e.g., revise and resubmit), and by organizing writing groups or instructional sessions, preferably led by senior faculty with extensive experience in the publication process.

Physical enabling factors can include access to collaborators, colleagues, laboratories, and equipment. Departments should support networking efforts of faculty, and they should encourage the development of lab space and equipment purchase whenever possible. Individuals with physical factors that enable scholarly productivity, are probably more likely to be successful in scholarly endeavors.

Table 1: Summary of Research about Behavioral and Environmental Correlates of Scholarly Productivity

Study	Sample Characteristics	Behavioral Factors	Environmental Factors
Baird (1986)	National sample of 511 Chemistry faculty, 584 History faculty, and 598 Psychology faculty from a variety of institutions	Not specified in this paper	<ul style="list-style-type: none"> <li>Degree from a top graduate program</li> <li>Emphasis on training researchers</li> <li>High level of faculty research activity</li> <li>Many hours per week spent on research</li> <li>Large number of professional presentations per year</li> <li>Research Funding</li> <li>Graduate student &amp; statistical or technical support</li> </ul>
Cruse (1993)	30 nationally and internationally recognized scholars in the movement sciences	<ul style="list-style-type: none"> <li>Focus</li> <li>Self-motivation</li> <li>Perseverance</li> <li>Preference for research over other duties</li> </ul>	<ul style="list-style-type: none"> <li>Effective information storage and retrieval system</li> <li>Match research interests &amp; teaching responsibilities</li> <li>Departmental value on scholarship</li> <li>Regular contact with colleagues</li> </ul>
Kovar & Overdorf (1995)	425 Ph.D. graduates from 13 major research institutions	<ul style="list-style-type: none"> <li>Perseverance</li> <li>Preference for research over other duties</li> </ul>	<ul style="list-style-type: none"> <li>Degree from top graduate program</li> <li>Effective information storage and retrieval system</li> <li>High level of faculty research activity</li> <li>Regular contact with colleagues</li> </ul>
Mitchell (1997)	28 of the most productive contributors to the <i>Journal of Teaching Physical Education</i> between 1980 and 1984	<ul style="list-style-type: none"> <li>Focus</li> <li>Goal-orientation</li> <li>Maintaining regular hours for writing</li> <li>Perseverance</li> <li>Preference for research over other duties</li> </ul>	<ul style="list-style-type: none"> <li>Degree from top graduate program</li> <li>Departmental recognition of the importance of scholarship</li> <li>Regular contact with colleagues</li> <li>Release time for research</li> </ul>
Ransdell, Dinger, Beske, & Cooke (in press)	<ul style="list-style-type: none"> <li>13 women scholars in the Movement Sciences (mean age = 52 y)</li> <li>67% Associate or Full Professors</li> <li>77% employed at RI Universities</li> <li>69 career publications</li> </ul>	<ul style="list-style-type: none"> <li>Self-motivation</li> <li>Discipline</li> <li>Perseverance</li> <li>Preparation</li> <li>Focus</li> <li>Being a supportive team player</li> <li>Completing promised work on time</li> </ul>	<ul style="list-style-type: none"> <li>14 hours per week spent on writing</li> <li>40% of time spent in teaching, 40% spent on research, and 20% on service</li> <li>Availability of mentors</li> <li>Availability of talented collaborators</li> <li>Institutional or personal support</li> <li>Successful networking</li> </ul>
Ransdell, Dinger, Cooke, & Beske (in review)	<ul style="list-style-type: none"> <li>10 women scholars in Health Education &amp; Promotion (mean age = 48 y)</li> <li>Most (80%) were Associate or Full Professors</li> <li>Most (80%) were employed at Research I or II Universities</li> <li>59 career publications</li> </ul>	<ul style="list-style-type: none"> <li>Self-motivation</li> <li>Discipline</li> <li>Persistence</li> <li>Preparation</li> <li>Effectively managing time</li> <li>Having organizational skills</li> </ul>	<ul style="list-style-type: none"> <li>7 hours per week spent on writing</li> <li>48% of time spent on research, 30% on teaching, and 22% on service</li> <li>Availability of mentors</li> <li>Availability of talented collaborators</li> <li>Institutional and departmental value placed on research</li> <li>Repeat class preparations</li> <li>Access to statisticians</li> </ul>

The last factor that can influence the functionality of the model is demographics. Demographics are not included in the original PRECEDE-PROCEED model. However, they are included in Welk's (1999) Youth

Physical Activity Promotion Model because factors such as age, gender, and ethnicity certainly affect participation in youth physical activity. Similarly, factors such as age (and academic rank), gender and

ethnicity can affect success with scholarly productivity. Within health education, the correlates of scholarly productivity relative to age and ethnicity have not been examined. Correlates of scholarly productivity relative to gender have been studied in the past within other disciplines (Safrit, 1979; 1984; Shuiteman & Knoppers, 1987), but there is a need to examine this issue within the context of health education. Therefore, future research studies should carefully examine the intersection of age (and academic rank), ethnicity, and gender as it relates to scholarly productivity within health education.

Once the predisposing, reinforcing, and enabling factors within a department are determined, they should be prioritized in terms of importance and changeability.

Demographic factors (e.g., age / academic rank, gender, and ethnicity) that may contribute to scholarly productivity should also be considered. Lastly, as was done in the previous step, specific goals should be written.

Step 5 involves performing an *administrative and policy diagnosis*. This step requires devising strategies for increasing scholarly productivity and planning for their implementation. The purpose of this stage is to identify the policies, resources, and circumstances within a college/university or department that could facilitate or hinder increased scholarly productivity. At this stage, individuals must assess the availability of human and material resources and make plans to proceed with the program.

The final steps in the PRECEDE-PROCEED model (steps 6 – 9) require the evaluation of the plan developed during the first 5 steps. During the implementation of the intervention, a *process evaluation* should be performed. This should ensure that the program was implemented according to the plan developed in steps 1-5. An *impact evaluation* should be performed to determine whether changes in predisposing, reinforcing, and enabling factors have occurred. Lastly, changes in behavioral and environmental factors should be examined.

## Conclusion

The goal of increasing scholarly productivity amongst health education faculty is meritorious. Increased productivity can bring notoriety and prestige to a department, which in turn increases that department's ability to attract top level graduate students and grant funding. For health education faculty in higher education, the usefulness of the PRECEDE-PROCEED model lies in its ability to develop a comprehensive and multi-factorial plan for increasing scholarly

productivity. The structure of the model forces individuals to critically examine where and how to intervene when necessary. While it is possible to delineate an overall blueprint for increasing scholarly productivity within faculty, it is not possible to designate one singular plan for a variety of individual faculty members within every department. Differences in gender, age (and academic rank), and ethnicity, and in departmental expectations, preclude the blanket use of this model. Undoubtedly, more research is needed relative to the correlates of scholarly productivity not only within health education but across sub-disciplines, college or university classifications, and age/academic rank, gender, and ethnicity. Once these correlates of scholarly productivity are delineated amongst a wider variety of individuals from many different backgrounds, the model should be even more applicable to a variety of health education professionals.

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Figure 1: A conceptual diagram of the Predisposing, Reinforcing, and Enabling Factors Related to Scholarly Productivity for Faculty in the Health Education

