Currents in Pharmacy Teaching and Learning xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Currents in Pharmacy Teaching and Learning

journal homepage: www.elsevier.com/locate/cptl

Research Paper

Faculty motivations to use active learning among pharmacy educators

Nicole Rockich-Winston[a,*,1], Brian C. Train[b], Michael J. Rudolph[c], Chris Gillette[d]

[a] Department of Pharmacology and Toxicology, Medical College of Georgia at Augusta University, 1120 15th Street, Augusta, GA 30912, United States
[b] Department of Pharmaceutical Science and Research, Marshall University School of Pharmacy, Huntington, WV, United States
[c] Department of Pharmacy Practice, Administration, and Research, Marshall University School of Pharmacy, Huntington, WV, United States
[d] Wingate University School of Pharmacy, Wingate, NC, United States

ARTICLE INFO

Keywords:
Faculty motivations
Faculty perceptions
Active learning
Intrinsic motivation
Extrinsic motivation

ABSTRACT

Introduction: Faculty motivations to use active learning have been limited to surveys evaluating faculty perceptions within active learning studies. Our objective in this study was to evaluate the relationship between faculty intrinsic motivation, extrinsic motivation, and demographic variables and the extent of active learning use in the classroom.

Methods: An online survey was administered to individual faculty members at 137 colleges and schools of pharmacy across the United States. The survey assessed intrinsic and extrinsic motivations, active learning strategies, classroom time dedicated to active learning, and faculty development resources. Bivariate associations and multivariable stepwise linear regression were used to analyze the results.

Results: In total, 979 faculty members completed the questionnaire (23.6% response rate). All motivation variables were significantly correlated with percent active learning use ($p < 0.001$). Intrinsic motivation demonstrated the highest correlation ($r = 0.447$) followed by current extrinsic motivations ($r = 0.245$) and ideal extrinsic motivations ($r = 0.291$). Variables associated with higher intrinsic motivation included the number of resources used ($r = 0.233$, $p < 0.001$) and the number of active learning methods used in the last year ($r = 0.259$, $p < 0.001$). Years of teaching experience was negatively associated with intrinsic motivation ($r = -0.177$, $p < 0.001$). Regression analyses confirmed the importance of intrinsic and extrinsic motivations in predicting active learning use.

Discussion and conclusions: Our results suggest that faculty members who are intrinsically motivated to use active learning are more likely to dedicate additional class time to active learning. Furthermore, intrinsic motivation may be positively associated with encouraging faculty members to attend active learning workshops and supporting faculty to use various active learning strategies in the classroom.

Introduction

Across healthcare education, there has been a greater emphasis in recent years on the use of active learning in the classroom to better prepare students for the ever-changing healthcare needs of their future patients.[1–5] A few studies have suggested varying

* Corresponding author.
E-mail address: nwinston@augusta.edu (N. Rockich-Winston).
[1] Affiliation at the time of manuscript submission: Department of Pharmacy Practice, Administration, and Research, Marshall University School of Pharmacy, 1 John Marshall Dr., Huntington, WV 25755, United States

https://doi.org/10.1016/j.cptl.2017.11.015

results of student learning outcomes when active learning strategies are incorporated into the classroom.[5–7] However, there is a growing body of evidence to suggest that active learning in health education curricula has enhanced learning outcomes and increased knowledge retention rates.[4,8–16] Moreover, a recent study evaluating knowledge retention rates of didactic coursework in the final advanced pharmacy practice experiences (APPE) found that retention rates of core content were significantly higher for students taught using active learning methods as compared to lecture-based methods.[17] In addition, the results from a meta-analysis of student performance in undergraduate science, technology, engineering and mathematics (STEM) courses indicated that the average examination score increased by 6% in active learning courses, and students assigned to traditional lecture courses were 1.5 times more likely to fail the course compared to their counterparts in classes dedicated to active learning.[18] In addition to improved educational outcomes, there is evidence to suggest that student perceptions of active learning such as classroom engagement, applicable classroom activities and relevance to their role as future healthcare providers have generally been positive.[19–22]

Even though student perceptions of active learning have been investigated, questions remain regarding faculty motivations toward active learning in healthcare education. Much of the literature in the healthcare professions has focused on surveys of faculty involved in active learning studies, which generally evaluate preferences, perceptions of effectiveness, and overall experiences.[22–26] However, existing healthcare education research has demonstrated the effectiveness of faculty development programs regarding their ability to improve teaching effectiveness as well as faculty perceptions and willingness to adopt active learning strategies.[27,28] Other higher education disciplines, most notably science and engineering, have provided additional insight into faculty members' attitudes toward teaching quality, teaching innovation and barriers to active learning.[29–31] In engineering specifically, an extensive longitudinal survey evaluated a variety of factors concerning teaching innovations and motivations to use such innovations in the classroom.[30] This particular study found the number of teaching workshops attended and active involvement at such workshops were positively correlated with the use of active learning while higher teaching loads significantly decreased the use of active learning in the classroom.[30] Interestingly, this survey also demonstrated that many respondents used active learning in spite of a lack of reward systems (awards, tenure, etc.) to promote active learning at their respective institutions.[30]

Despite the developing evidence regarding influential factors for faculty to use active learning in the classroom, the relationship between self-determination theory and use of active learning in healthcare education has not been explored. Self-determination theory can be described as having two components: intrinsic and extrinsic motivation.[32] Intrinsic motivation affects behavior based on personal aspiration to seek out new challenges and gain knowledge while extrinsic motivation influences behavior to avoid punishment or obtain rewards.[32] To address this gap in existing research, this study's primary aim was to evaluate the relationship between intrinsic and extrinsic motivations and the percentage of classroom time dedicated to active learning among pharmacy school faculty in the United States. Secondary outcomes analyzed the impact of faculty demographics, institutional characteristics, teaching load, and faculty development resources on active learning use.

Methods

The longitudinal questionnaire used by Brawner et al.[30] to survey engineering faculty members served as the basis for the instrument used in the current study. The engineering survey contained items concerning instructional practices, involvement in faculty teaching development, personal views on active learning and perceptions of institutional support. A comprehensive review of published active learning research in health education was evaluated to determine the most common active learning strategies. Following the literature search, the Brawner et al.[30] survey was modified to reflect recent advances in active learning and to include strategies that are unique to healthcare professions (e.g., patient simulation). The survey instrument for this study was evaluated for content validity by study investigators. The survey contained a total of 24 questions, a number of which contained multiple items. This study was approved by the Marshall University Institutional Review Board.

Measures

The following variables were collected by self-report: age, gender, years of teaching experience, department membership, discipline, and teaching load. Participants were then asked about the types of active learning used, the percentage class time dedicated to active learning, and the frequency with which s/he used active learning in the classroom throughout the semester. In addition, participants self-reported types of faculty development available at their institutions from a list of eight commonly used development resources and how many times each respondent used these resources. For institutional characteristics, the following variables of all accredited, candidate and pre-candidate colleges/schools of pharmacy were compiled from individual schools and colleges of pharmacy websites: year established, class size and public/private status. For the purpose of regression analysis, the "year established" variable was changed from continuous to a dichotomous variable based on previous literature indicating the substantial increase in the number of pharmacy schools beginning in 1996.[33]

As aforementioned, Brawner and colleagues,[30] motivations scale to assess intrinsic and extrinsic motivations regarding active learning use was modified for pharmacy faculty. The motivation-related survey questions consisted of a modified scale composed of 40 items. The response options consisted of a six-point Likert scale (1 = strongly disagree, 6 = strongly agree). Ten items evaluated intrinsic motivation and included items such as the respondent's views on the ability of active learning to enhance student learning and the participant's desire to engage in development activities pertaining to active learning. To evaluate the respondent's current extrinsic views, 18 items were asked that included items that evaluated stakeholder support for active learning, environmental support (e.g., classroom compatibility and class size), and reward systems (e.g., annual raises and tenure and promotion). We also evaluated each respondent's ideal extrinsic environment with 12 additional items, that addressed hypothetical extrinsic motivators