Evaluation of Multi-course Integrated Learning on Pharmacy Student Confidence in Self-care Counseling

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Evaluation of multi-course integrated learning on pharmacy student competence in self-care counseling

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BACKGROUND

Purpose
To (1) examine the effectiveness of integrating didactic and experiential education on student competence in knowledge, skills, and attitude and (2) disseminate effective models of integration for basic science, clinical science, and experiential education.

Integration of Learning
Integration of didactic and experiential learning has been discussed by many disciplines but data on this integration is scant in pharmacy education literature.

ACPE Standard 14 states that “The pharmacy practice experiences must integrate, apply, reinforce, and advance the knowledge, attitudes, and values developed throughout the other components of the curriculum” and should “be interfacial with didactic course work that provides an introduction to the profession.”

Cedarville’s professional program is unique in that it integrates both lab activities and introductory Pharmacy Practice Experiences (PPEs) within a semester.

RESULTS

Final Faculty Rubric (Excerpt from Candidate Rating)

<table>
<thead>
<tr>
<th>Interpersonal</th>
<th>Commendable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewing</td>
<td>Most questions are clear. Most questions are open. No leading questions. Interview in a manner that encourages the patient’s responses.</td>
</tr>
<tr>
<td>Word Use</td>
<td>Very little or no medical jargon, any used is explained. Very few or no filler words</td>
</tr>
<tr>
<td>Giving</td>
<td>Responded to patient inquiry in a clear manner. Checked patient understanding in an effective manner. Most information was clear.</td>
</tr>
<tr>
<td>Attitude and</td>
<td>Consistently paid attention when the patient was speaking. Was consistently polite, kind, and respectful to the patient.</td>
</tr>
<tr>
<td>Professionalism</td>
<td>Sincere, appropriate statements of empathy, encouragement, and concern. Stated intention to help. Appeared to establish a relationship with the patient.</td>
</tr>
<tr>
<td>Counseling</td>
<td>Successfully introduced self and shook hands, if appropriate. Appearance clean and professional. Fully properly attired.</td>
</tr>
</tbody>
</table>

Faculty Rubric Total Score Correlations - Spearman’s Rho

- Exam 3 & Week 9: Correlation Coefficient = 0.426, Sig (2-tailed) = 0.003
- Final Grade & Week 1: Correlation Coefficient = 0.400, Sig (2-tailed) = 0.005
- Final Grade & Week 3: Correlation Coefficient = 0.391, Sig (2-tailed) = 0.007
- Final Grade & Week 5: Correlation Coefficient = 0.462, Sig (2-tailed) = 0.011
- Final Grade & Week 6: Correlation Coefficient = 0.356, Sig (2-tailed) = 0.014

DISCUSSION & CONCLUSIONS

- Students significantly improved in patient counseling abilities overall and in specific areas. Integration-based learning for self-care concepts is beneficial for student learning and competency acquisition.
- Students’ improvement in most of the items suggests an improved understanding of the QUEST-SCHOLAR model of counseling as well as greater awareness of the behavioral components of a patient interaction.
- Cedarville’s model of integrated learning is successful in improving students’ competency scores in both traditional measures (e.g., exams) and a school-developed self-care counseling rubric.
- Future research can compare this model to different ones in order to find the optimal form of integrated education for student improvement and learning.
- There is evidence to suggest a link between performance on the self-care rubric and performance on more traditional competency measures. Both exam scores and final grades were related through correlation to scores on Faculty rubric.
- Students showed regular, significant improvement in rubric scores throughout the semester, peaking in week 7. Score distributions decreased slightly in week 9 when students were faced with the last topic (i.e., Cough & Cold).
- Continued improvement suggests that familiarity was not the only factor; rather, students’ counseling abilities increased.
- Students were not always rated by the same professor, thus leading to some discrepancies in rubric scoring.
- It is possible that week 7’s topic was particularly easy or that the later weeks became more stressful, resulting in the slight decrease in scores.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree, 2007, standard 14.

ACKNOWLEDGEMENTS

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DATA COLLECTION & ANALYSIS

- Students in a first professional-year self-care course (N=46) learned self-care topics (Anorexia, Allergies, Fever, Constipation, Heartburn, Lice, Fungal, Diarrhea, and Cough/Cold).
- Students were trained in class on a particular topic and are then able to practice their knowledge of that topic in lab and in the field on a weekly basis (see figure below).
- Patients’ exam scores and final grades from the course were collected for research purposes but de-identified to protect student privacy.
- Students were assessed in simulated patient counseling encounters with faculty (N=9) in pharmacy practice lab setting, for a total of 9 different self-care topics.
- Students then practiced counseling on 6 of the same topics (Anorexia, Heartburn, and Cough/Cold) in their community pharmacy lab during the semester.

Rubric Development
- A rubric was created from literature review and underwent content and face validity.
- Faculty utilized it to assess students (14 items, 4-point, Likert-type, 1=Unsatisfactory, 4=Commendable, Range 14-56).
- Cronbach’s alpha = 0.807
- A shorter, 5-item version of the rubric was created for preceptor use

Faculty Rubric Description
- 7-item Interpersonal Skills Subscale: Modified and adapted from van Zandt et al. 2007 (examined the interpersonal skills of nearly 38,000 foreign physicians)
- 7-item Appropriate Self-Care Counseling Subscale: Created from the QUEST-SCHOLAR-MAC method as well as the “Teach-Back” method of patient counseling

Statisticians
- Data were analyzed using SPSS v23 with descriptive statistics and:
  - Shapiro-Wilk test: Normality of data sets
  - Wilcoxon Signed-Rank Test: Facial differences between test-retest for rubric total scores
  - Friedman/Repeated Measures ANOVA: Overall differences in rubric total and item-specific scores
  - Pearson/Spearman Correlations: Association between rubric total scores, exams, and final grades

Differences in Faculty Rubric Total Score Distributions - Wilcoxon Signed-Rank Test

<table>
<thead>
<tr>
<th>Week</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>0.01</td>
<td>0.052</td>
<td>0.004</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>0.005</td>
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</tr>
<tr>
<td>&lt;0.01</td>
<td>0.01</td>
<td>0.010</td>
<td>0.148</td>
<td>0.023</td>
<td>&lt;0.001</td>
<td>0.004</td>
<td>0.086</td>
<td>0.096</td>
<td></td>
</tr>
<tr>
<td>&lt;0.01</td>
<td>0.052</td>
<td>0.422</td>
<td>0.256</td>
<td>0.123</td>
<td>0.005</td>
<td>0.002</td>
<td>0.096</td>
<td>0.046</td>
<td></td>
</tr>
<tr>
<td>&lt;0.01</td>
<td>0.004</td>
<td>0.148</td>
<td>0.256</td>
<td>0.435</td>
<td>0.013</td>
<td>0.014</td>
<td>0.466</td>
<td>0.580</td>
<td></td>
</tr>
<tr>
<td>&lt;0.001</td>
<td>0.001</td>
<td>0.132</td>
<td>0.435</td>
<td>0.094</td>
<td>0.431</td>
<td>0.100</td>
<td>0.038</td>
<td>0.108</td>
<td></td>
</tr>
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<td>0.004</td>
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</tr>
</tbody>
</table>

Red cells indicate statistical significance (α=0.05).