

Tracking Student Self-Confidence to Perform Curricular Outcome Tasks

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Background

Accreditation standards for Doctor of Pharmacy (PharmD) programs in the United States require that programs “develop and carry out assessment activities to collect information about the attainment of desired student learning outcomes.”¹ Furthermore, programs are encouraged to use student self-assessment as one method to “demonstrate and document that graduates have attained the desired competencies.”¹ Although one may assume that successful demonstration of knowledge and skill is synonymous to outcome achievement, Albert Bandura’s seminal work on self-efficacy theory suggests otherwise.² Bandura argues that the degree of self-efficacy possessed by an individual influences engagement in a behavior, and that this degree of self-efficacy is largely driven by self-confidence levels as opposed to knowledge and skill alone.² Studies in the pharmacy and medical education literature support Bandura’s theoretical construct.^{3,4}

The University of Maryland School of Pharmacy has established sixteen terminal performance outcome (TPO) statements that describe specific abilities related to direct patient care, practice management, and population health. Each TPO is associated with sub-tasks that can be measured so that progress towards outcomes can be assessed. Examples of our TPOs and related sub-tasks include:

1: Participate in the development of patient-specific therapeutic plans

- 1.1: Compile and evaluate patient-specific information
- 1.2: Collaborate with physicians, other prescribers, patients, and caregivers to:
 - 1.2.1: establish therapeutic objectives
 - 1.2.2: select an appropriate drug regimen to achieve the therapeutic objective(s)
 - 1.2.3: determine the dose and dosage schedule
 - 1.2.4: assess an existing drug regimen and recommend modifications

9: Maximize appropriate drug use behaviors

- 9.1: Determine the extent to which patients adhere with their therapeutic plan(s) including recommended drug regimens
- 9.2: Determine whether patients engage in and use appropriate techniques to perform self-monitoring activities as part of their therapeutic plan(s)
- 9.3: Identify the root cause(s) that prevent patients from engaging in optimal drug use behaviors
- 9.4: Influence patients to improve adherence to recommended lifestyle behaviors, drug regimens, and self-monitoring

10: Participate in the process of monitoring patient outcomes

- 10.1: Collaborate with physicians, other prescribers, patients, and caregivers to:
 - 10.1.1: develop monitoring plans to determine if the therapeutic objective(s) is being achieved
 - 10.1.2: develop monitoring plans to detect adverse drug effects

13: Participate in quality assurance processes related to drug use.

- 13.1: Participate in and perform drug use evaluations
- 13.2: Identify the root cause(s) of patient safety problems related to drug use

15: Participate in health policy decision-making processes related to drug use

- 15.1: Identify appropriate sources of information, analyze data, and evaluate primary literature to assist policy makers and prescribers make well-informed decisions about drug therapy.

Objectives

To assess student self-confidence to perform our curricular terminal performance outcomes over time.

Methods

A survey tool was developed that presents three case scenarios in a community pharmacy setting, a hospital pharmacy setting, and a health maintenance organization (HMO). Each scenario is followed by a list of key tasks required to address the problem(s) in the case. Each task is anchored in the school’s terminal performance outcomes. For example:

Case 1 – Community/Chronic Care Case:

- Determine the dose and dosage schedule for Mrs. Garcia’s diabetes medications (TPO 1.2.3)

- Influence Mrs. Garcia to improve adherence to recommended lifestyle behaviors, drug regimens, and self-monitoring (TPO 9.4)

Case 2 – Hospital/Acute Care Case:

- Select an appropriate drug regimen to achieve the therapeutic objective for the treatment of infective endocarditis in Mr. Jones (TPO 1.2.2)

- Develop a monitoring plan to determine if the therapeutic objective is being achieved for Mr. Jones (TPO 10.1.1)

Case 3 – Managed Care/ Population Care Case

- Identify appropriate sources of information, analyze data, and evaluate the primary literature to assist the pharmacy and therapeutic committee with making a well-informed decision about adding Formadil to the formulary (TPO 15.1)

- If Formadil is added to the formulary and several patients prescribed Formadil are hospitalized within 4 weeks after starting therapy, identify potential root cause(s) of patient safety problems related to Formadil use (TPO 13.2)

Students are asked to envision themselves in each case scenario and rate their level of confidence to perform the described tasks.

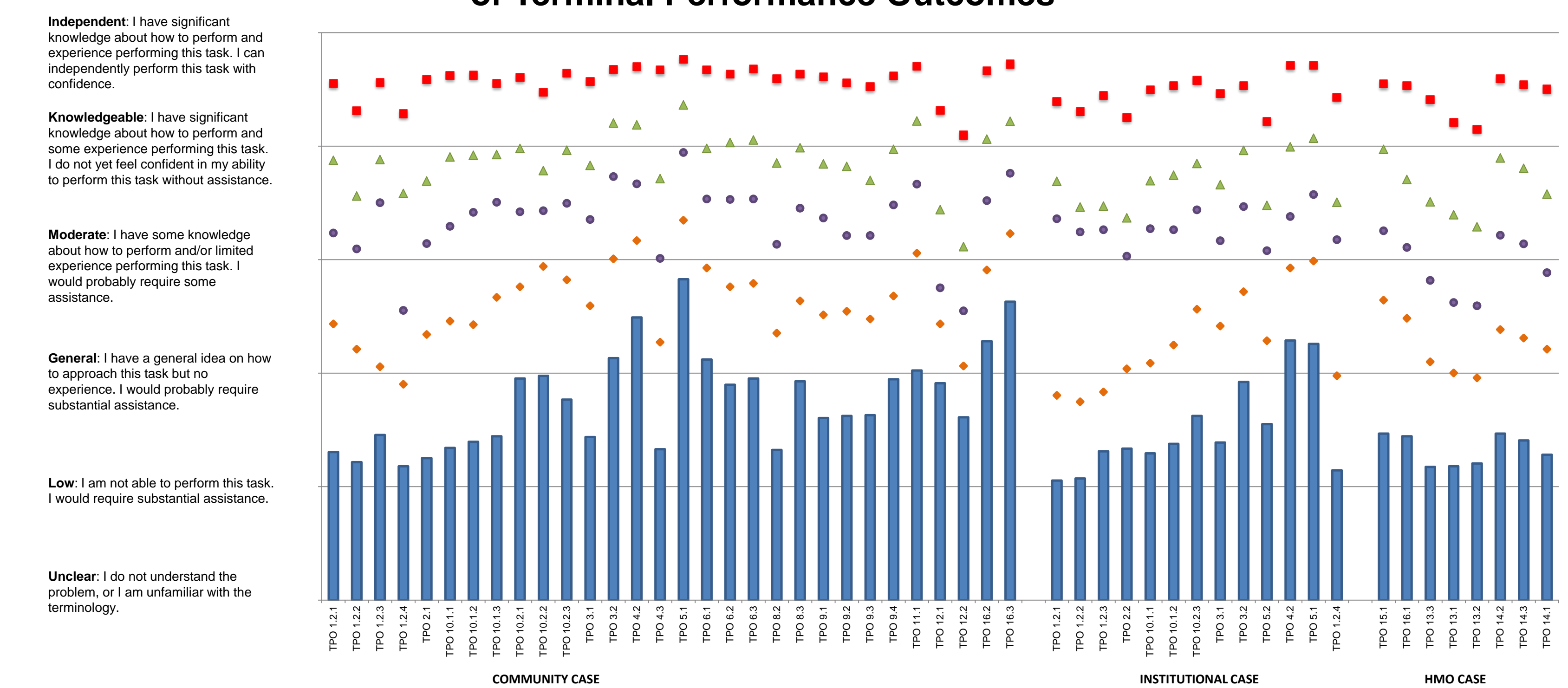
Students in the Class of 2013 were given the survey as a baseline assessment shortly after admission to the school and during the Spring semesters of the first (P1), second (P2), third (P3) and fourth (P4) professional years. Changes in student self-confidence was tracked over time and data regarding similar tasks performed in the community and hospital case scenarios were compared and analyzed.

Results

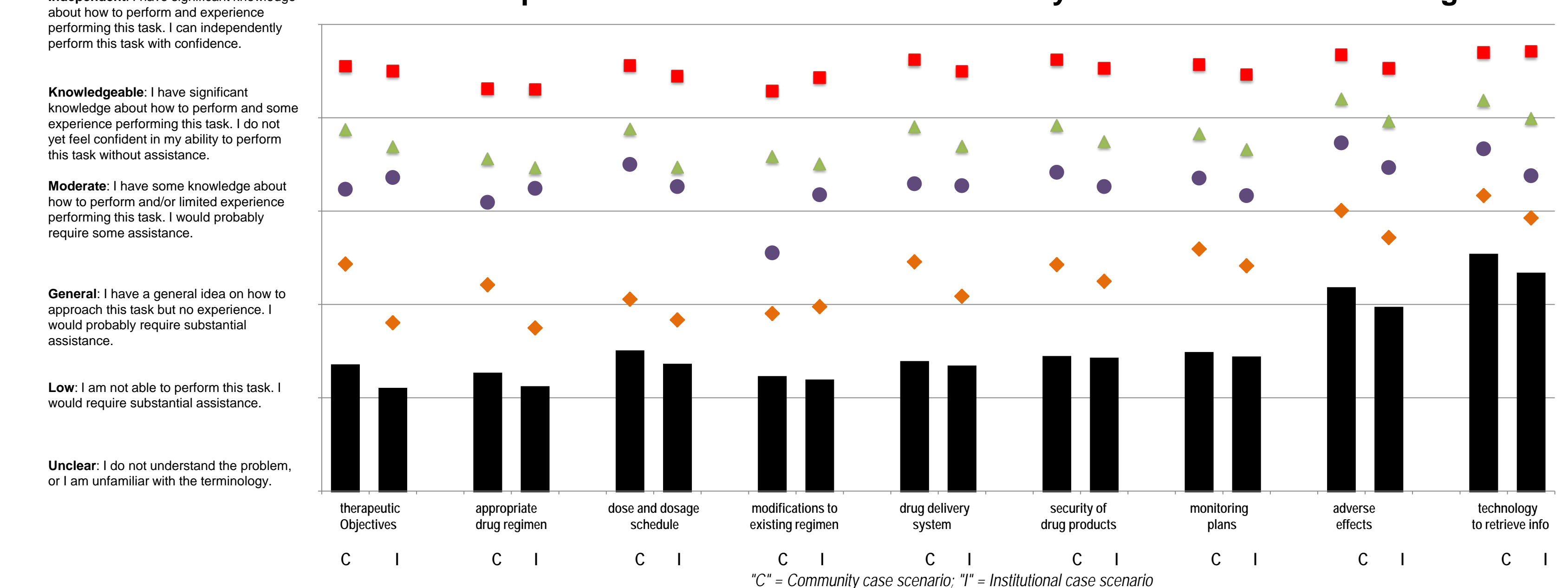
At baseline, most students indicated they could not perform any task in any scenario “without substantial supervision” (ranging from 54 to 98% depending on task and scenario). As students progressed through the curriculum, self-confidence substantially improved. The percentage indicating they could perform the task without assistance significantly increased (range: 0 - 13% baseline; 0 - 18% P1; 0 - 33% P2; 5 - 48% P3, 39 - 81% P4; p<0.001) and mean scores increased for each task (p<0.001). There were similar increases in self-confidence in all practice settings. Self-confidence was highest for drug distribution, technology, and information retrieval tasks and lowest for drug selection, therapy modification, billing for services, medication use evaluation, and root-cause analysis tasks.

Figures

Class of 2013 Self Assessment of Achievement of Terminal Performance Outcomes



Class of 2013 Self Assessment of Achievement of Terminal Performance Outcomes, Comparison of Similar Tasks in Community versus Institutional Settings



Conclusions

Students in our curriculum demonstrated substantial and incremental improvement in their self-confidence to perform key professional tasks over time. Tracking changes in self-confidence may provide educators valuable insights regarding student progression toward curricular outcomes and may supplement other curriculum assessment methods.

References

1. ACPE Standards and Guidelines (Adopted January 23, 2011).
2. Bandura A. Psychological Review 1977; 84: 191-215.
3. Popovich NG, et al. AJPE 1987;51:17-23.
4. Ytterbert SR, et al. Acad Med 1998;73:S103-105.