# Student Performance and Perceptions Following Implementation of a New Drug Competency Assessment (DCA) Sequence

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## INTRODUCTION

- Top 200/300 assessments are used as a supplement to existing curriculum to support the broad knowledge competencies necessary for passing the NAPLEX.
- The SDSU PharmD program historically used an exam-only approach (2 exams per semester) for Top 200 assessments during the first 6 semesters of the didactic curriculum, with many challenges:
  - High student stress associated with the assessments
  - Increasing fail rates (historically set at <80%) and high faculty workload for remediations
  - Inconsistencies in source material (drug cards) introduced confusion
  - Misalignment of assessment to knowledge-based and not application-based competency
- In Fall 2023, a new drug competency assessment (DCA) sequence was introduced:
  - Ten low-stakes weekly quizzes followed by a high-stakes summative exam each semester
  - Weighting of DCA material was standardized across lab courses
  - Creation of standardized information document for student review
  - Maintenance of remediation pathway (score of <70% required remediation)
  - Assessments reformatted entirely to ensure alignment with knowledge-level objective

| Fall Med Groups | Spring Med Groups |
|---|---|
| Pain (19) | Hypertension (22) |
| Anti-infective (20) | Lipids/Cardio (17) |
| GI Miscellaneous (22) | Depr/Anxiety/Sleep (22) |
| Allergy/Respiratory (14) | Advanced Psych (23) |
| Hormones, DM (19) | |

### Goals of new DCA sequence:
- Decrease failed exams and required remediations
- Improve student stress associated with and confidence in DCA material

|  | | Year | |
|---|---|---|---|
| Content Tier | P1 | P2 | P3 |
| Tier 1 | 50% | 20% | 10% |
| Brand/Generic | | | |
| CS Schedule | | | |
| Therapeutic Class | | | |
| Tier 2 | 50% | 30% | 20% |
| Available Dosage Forms | | | |
| FDA Indications/Efficacy Monitoring | | | |
| Mechanism of Action | | | |
| Patient Consultation | | | |
| Tier 3 | 0% | 30% | 30% |
| Adverse Effects/Toxicity Monitoring | | | |
| Drug Interactions | | | |
| Contraindications/Precautions/BBW | | | |
| Tier 4 | 0% | 20% | 40% |
| Dosages | | | |
| Pharmacology/PK | | | |
| Clinical Pearls | | | |

## OBJECTIVE

Evaluate the impact of a Drug Competency Assessment (DCA) sequence integrating low-stakes weekly quizzes and high-stakes summative exams on basic drug knowledge and student stress.

## METHODS

### Survey of Students
- 12-item online questionnaire created
  - Comparison of DCA sequence to previous Top 200 exams
  - Also included questions related to amount of time spent studying for each quiz and exam
  - Asked students to provide details about how they changed their study habits and what they liked or disliked about the new DCA sequence
- Instrument pilot-tested with P4 students for readability
- Administered to P2/P3 students after summative exams
- No incentive provided for student participation

### Evaluation of Exam Performance
- Exam scores were collected from the electronic course management system for Fa22/Sp23 vs Fa23/Sp24
- Scores < 70% were considered as failed exams for this evaluation, consistent with new DCA policy

## RESULTS

**P2, P3 DCA Student Survey Feedback**
**Fall 2023 (41 P2s, 56 P3s) – 68/97, 70% response rate**

3. As **compared to the previous Top 200 exams**, please rank the **DCA quizzes** on the following elements:

| Item | Mean | Significantly less (1) N | Significantly less (1) % | Somewhat less (2) N | Somewhat less (2) % | About the same (3) N | About the same (3) % | Somewhat more (4) N | Somewhat more (4) % | Significantly more (5) N | Significantly more (5) % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| a. Stress | 1.368 | 48 | 70.6% | 16 | 23.5% | 3 | 4.4% | 1 | 1.5% | 0 | 0.0% |
| b. Difficulty | 1.691 | 32 | 47.1% | 25 | 36.8% | 11 | 16.2% | 0 | 0.0% | 0 | 0.0% |
| c. Clarity of study material | 4.353 | 2 | 2.9% | 1 | 1.5% | 10 | 14.7% | 13 | 19.1% | 42 | 61.8% |
| d. Fairness of questions | 4.309 | 2 | 2.9% | 0 | 0.0% | 8 | 11.8% | 23 | 33.8% | 35 | 51.5% |
| e. Confidence in material going into the assessment | 4.061 | 3 | 4.4% | 0 | 0.0% | 12 | 17.6% | 26 | 38.2% | 25 | 36.8% |
| f. Time needed to prepare | 1.818 | 26 | 38.2% | 29 | 42.6% | 8 | 11.8% | 3 | 4.4% | 0 | 0.0% |

4. As **compared to the previous Top 200 exams**, please rank the **DCA exam** on the following elements:

| Item | Mean | Significantly less (1) N | Significantly less (1) % | Somewhat less (2) N | Somewhat less (2) % | About the same (3) N | About the same (3) % | Somewhat more (4) N | Somewhat more (4) % | Significantly more (5) N | Significantly more (5) % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| a. Stress | 1.956 | 25 | 36.8% | 28 | 41.2% | 8 | 11.8% | 7 | 10.3% | 0 | 0.0% |
| b. Difficulty | 1.897 | 21 | 30.9% | 33 | 48.5% | 14 | 20.6% | 0 | 0.0% | 0 | 0.0% |
| c. Clarity of study material | 4.353 | 1 | 1.5% | 2 | 2.9% | 10 | 14.7% | 14 | 20.6% | 41 | 60.3% |
| d. Fairness of questions | 4.162 | 1 | 1.5% | 1 | 1.5% | 11 | 16.2% | 28 | 41.2% | 27 | 39.7% |
| e. Confidence in material going into the assessment | 3.926 | 1 | 1.5% | 2 | 2.9% | 17 | 25.0% | 29 | 42.6% | 19 | 27.9% |
| f. Time needed to prepare | 2.191 | 12 | 17.6% | 36 | 52.9% | 17 | 25.0% | 1 | 1.5% | 2 | 2.9% |

**Exam Pass Rate (%)**

| | P1 Fa | P1 Sp | P2 Fa | P2 Sp | P3 Fa | P3 Sp |
|---|---|---|---|---|---|---|
| E1/E2 Fa22/Sp23 (old) | 86 | 95 | 76 | 96 | 98 | 97 |
| SE Fa23/Sp24 (new) | 84 | 97 | 100 | 90 | 100 | 96 |

*Positive Student Feedback:*
- Improved structure and clarity of expectations
- Master spreadsheet led to improved focus, understanding, and preparation for assessments
- Weekly quizzes were manageable, reducing stress compared to the previous test-only approach
- Assessments focused on practical application of knowledge, which helped students to connect the content to real-world scenarios

*Negative Student Feedback:*
- Volume of material still overwhelming, particularly for the summative exam
- Concerns about reliance on memorization and long-term knowledge retention
- Difficult to balance with other coursework, particularly during periods with numerous assessments

## IMPLICATIONS

- Implementation of the new DCA sequence appears to have been successful in this early analysis
  - Positive student feedback overall
    - Lower stress and difficulty
    - Improved clarity of study material, fairness of questions, and confidence in material
  - Impact on exam pass rates (and required remediations) was mixed, but most cohorts had numerically similar outcomes
- Long-term knowledge retention with this sequence is unknown

## FUTURE DIRECTIONS

- The new DCA sequence will be continued based on promising early results and positive student feedback
- The impact of the new DCA sequence on NAPLEX pass rates will need to be explored
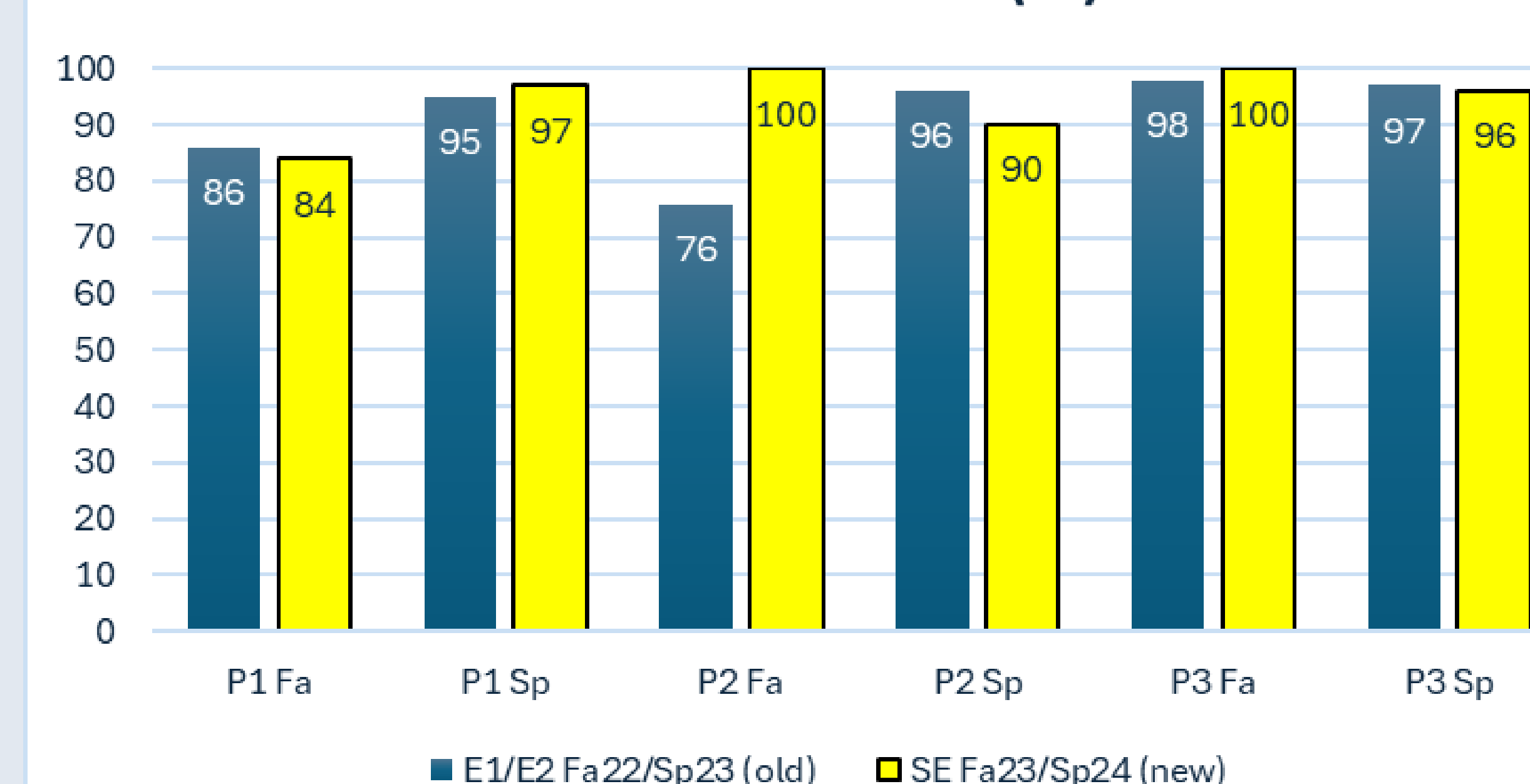
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