

Complexity Level* ¹	Code	Activity Description ^{2,3}
Low Complexity	A*	<i>Question & Answer:</i> Students orally respond to a question, comment, etc either voluntarily or by cold-calling . *A1 and A2 denote simple knowledge / comprehension questions (recall) and generally are asked by instructor but limited or no time is provide for the student to process / respond. A1 denotes students responded to question / A2 denotes students were asked to respond AND given time but did not respond – will track A1 and A2 for numbers but not time as conducted in less than 1 minute. A3 denote a higher-order question, where students are provided time (>1 min) to process then respond. This does not include rhetorical questions.
	B	<i>One-minute paper / Focused Listing / One Sentence Summary:</i> Short writing task designed to allow students to focus attention on a single important term, name or concept from a particular lesson / session
	C	<i>Think/Pair/Share:</i> Short, individual written response to a prompt/question; then instructed to share and discuss briefly with partner; then asked to share with larger group
	D	<i>Brain Dump / Free Write:</i> Short write in which students write down everything they know about an announced topic.
	E	<i>Muddiest Point:</i> At some point during or after an in-class presentation, students write a quick response to the prompt, “What was the muddiest point in _____?”
	F	<i>Misconception / Preconception Check:</i> Simple technique for gathering information on what students perceive they already know
	G	<i>Application Activity:</i> Written activity in which students apply 1-2 principles and concepts to real life situation
	H	<i>Student-Generated Questions:</i> Students create questions for quizzes or exams that are crafted to capture central elements of the course
	I	<i>Formative Quizzes / Surveys (Background Knowledge Probe):</i> Ungraded quizzes / surveys to determine comprehension
	J	<i>Computer Based Interaction Systems: (Personal response system)</i> Students participate in the lecture by responding to questions / statements via computers / wireless technology.
Moderate Complexity	K	<i>Self / Peer Formative Assessment:</i> Activities that require students to assess performance against applicable criteria; extend to offer specific suggestions for improvement
	L	<i>Small Group Presentations / Discussions:</i> Presentations / discussions of course material – led by <input type="checkbox"/> Faculty vs. <input type="checkbox"/> Student
	M	<i>Role Playing / Simulations / Games:</i> Students and/or faculty performing specific roles for demonstration purposes Simulations / games include guiding principles, specific rules and structured relationships
	N	<i>Categorizing Grid / Pro-Con Grid:</i> Students are presented with 2-3 important categories (superordinate concepts) along with a scrambled subordinate terms, images, equations or other items that belong in one or another of the superordinate categories.
	O	<i>Defining Features Matrix / Memory Matrix:</i> Students categorize concepts presented according to presence (+) / absence (-) of defining features
	P	<i>Debates:</i> Small or large group structured exploration of central concepts, data, beliefs, values
High Complexity	Q	<i>Peer Teaching:</i> Students teaching each other basic and/or intermediate levels of course materials or needed skills
	R	<i>Concept Maps:</i> Drawings or diagrams that show the mental connections that students make between a major concept presented and other concepts they have learned
	S	<i>Cases:</i> Scenarios that require students to integrate their skills to solve problems that relate to course material
	T	<i>Cooperative Cases:</i> Scenario-based problem-solving activity using small groups to tackle specific questions/issues from larger list
	U	<i>Jigsaw:</i> Team-based: each member becomes subject matter expert in 1 of 4 areas selected from current course material. Each member teaches their subject matter.
V	<i>Cooperative Learning / Problem Based Learning:</i> Students work together to learn course knowledge and to develop course skills.	

Faculty gender: Male Female

Age Range: 25-29 30-34 35-39 40-44
 45-49 50-54 55-59 60+

Non-tenure Tenure
 Assistant Associate Full Professor

Years of Teaching:

0-1 2-5 6-10 11-15 16-20 >20

Course: Undergraduate Graduate

Time of day: 8-12:59pm 1-4:59pm After 5pm

Number of Students: _____

Type / Location of Room: _____

Question & Answer (Total)	A ₁ :			A ₂ :				A ₃ :		
	AL Episode 1	AL Episode 2	AL Episode 3	AL Episode 4	AL Episode 5	AL Episode 6	AL Episode 7	AL Episode 8	AL Episode 9	AL Episode 10
Code										
Activity Description										
Complexity										
Time start										
Time end										
Total time (minutes)										

AL Quantitative Summary	Reviewer Response
Item I: Total # times AL used:	Please provide specific feedback on the following: (1) Faculty skill in activity (2) Quality of classroom environment during the activity (3) Overall atmosphere
Item II: # Different types of AL used:	
Item III: # Low complexity / total:	
Item IV: # Moderate complexity / total:	
Item V: # High complexity / total:	
Item VI: Total time spent for all AL activities: (sum total time for all activities)	
Item VII: Average time per AL activity: (total time/ total # times AL used)	

¹ Angelo TA, Cross KP. Classroom Assessment Techniques: A Handbook for College Teachers. 2nd ed. Jossey-Bass, San Francisco CA, 1993.

² Bonwell CC, Eison JA. Active learning: creating excitement in the classroom. ASHE-Eric Higher Education Report 1. Washington, DC: The George Washington University, School of Education and Human Development, 1991.

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“To Do or Not to Do”: Faculty Perceptions of Active Learning in Large Classes

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Background

- Use of active learning (AL) in the classroom promotes the integration and application of material while the material is still being presented, encourages critical thinking, and fosters the development of a self-directed learner.^{1,2}
- The Accreditation Council for Pharmacy Education (ACPE) and the American Association of Colleges of Pharmacy (AACP) both encourage a curriculum that directly involves students and that facilitates the transition from "dependent to independent learners."^{3,4}
- While AL strategies are being increasingly incorporated into the classroom environment, an 'inventory tool' to characterize the use of AL techniques by faculty does not exist.
- A valid and reliable AL inventory tool (ALIT):
 - 1) Will allow for documentation of the type and quantity of AL occurring in classrooms and may provide a basis for qualitative evaluation of AL techniques.
 - 2) May be used to determine the type of AL technique that is best suited to teach or assess a particular level of knowledge.
 - 3) Can serve faculty and program administrators as they seek to evaluate teaching skills and provide comments for improvement.

Objective

- To compare faculty perceptions of the amount and type of AL used in the classroom with actual use as documented by a validated AL inventory tool (ALIT).

Methods

- 4 trained observers used the ALIT to evaluate 8 one hour pharmacy lectures (enrollment >80 for each).
- Faculty were interviewed after the lecture using a scripted survey to elicit perceptions of the lesson including:
 - Their definition of active learning;
 - The perceived merits of AL in the classroom;
 - The types of AL activities used in the lecture, rationale for the use of that specific activity, and the amount of class time devoted to AL activities;
 - Estimated time required to prepare the lesson and AL activities;
 - Barriers associated with the use of AL;
 - The impact that using AL techniques has on the amount of content covered.
- Data was coded and analyzed using analyst triangulation with three independent coders.
- Agreement between the 4 observers and each of the 7 lecturers was measured for the number of AL episodes, number of different AL episodes and time per AL episode.

References

1. Moffett BS, Hill KB. The transition to active learning: a lived experience. *Nurse Educator*, 1997;22:44-7.
2. Bonwell CG, Eison JA. *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University, School of Education and Human Development; 1991.
3. Accreditation Council for Pharmacy Education. Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. <http://www.acpe-accredit.org/pdf/Standards2000.pdf>. Accessed January 06, 2005.
4. Background Paper II: Entry level, curricular outcomes, curricular content and educational process. *Am J Pharm Ed* 1993;57:377-85.

Results

Themes highlighted by faculty interviews included (n=7)

- Definitions of AL were 'non-standard,' but all included elements of 'doing' and 'processing';
- Merits of using AL included: 1) better retention of material (57%) and 2) improved application and critical thinking (29%);
- Most frequently reported types of AL used were cases (100%), think / pair / share (66%), and use of a computer-based personal response system (33%);
- Past exposure / familiarity with a particular AL technique was the most common reason for its use;
- Faculty reported a wide range of the total class time they spent on AL [25 (10-50)%] [median (range)];
- Most faculty (71%) reported that the use of AL required more preparation time, particularly if the technique was new to them, if they were unfamiliar with AL overall, or if this was a new lecture that was being prepared;
- Barriers to the use of AL were: lack of time (86%), need to remove content (43%), lack of technology in classroom (14%) and the large class size (14%);
- Most faculty believed that any increase in the time devoted to AL came at the expense of lecture content (86%).

Agreement Between Observers and Lecturers:

	Faculty Perception [median (range)]	Observed Using ALIT [median (range)]	% Agreement Between Faculty and Observers [median (range)]
Average # AL episodes / lecture	10 (2-40)	13 (4-34)	82% (58-100)
Average # of different types of AL used / lecture	2 (1-5)	3 (2-5)	78% (62-100)
Average time per AL episode (minutes)	1.4 (0.3-13)	2.2 (0.6-16)	68% (50-82)

Conclusions

- Faculty beliefs are somewhat contradictory: While they believe that AL increases retention and involvement they feel that it is too time intensive for complex materials
- With the exception of faculty under reporting of their use of student questioning, faculty perceptions about the types and quantity of AL used in lectures was generally similar to that observed using the ALIT.
- Areas for future ALIT evaluation include: (1) to measure its effectiveness as a change agent in faculty pedagogy and (2) to test its usefulness in other allied health disciplines.



Capture the Action! Development of a Valid and Reliable Active Learning Inventory Tool



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 - 3) Can serve faculty and program administrators as they seek to evaluate teaching skills and provide comments for improvement.

Objectives

- To develop a valid and reliable active learning inventory tool.

Methods

- A draft of the tool was prepared using a focused literature review.
- The draft ALIT was evaluated by three national experts in the field of educational research. These experts provided specific feedback about the descriptors and categories used in the tool, wording, format, ease of use, and overall generalizability. The tool was modified based on the results of this feedback.
- Four trained faculty observers used the ALIT to independently review three recorded one hour pharmacy lectures. The tool was modified again to improve ease of use and clarity of classifications.
- Four trained faculty observers then used the ALIT to evaluate six 'live' one hour pharmacy lectures. Further modification was made to the tool as needed.
- Agreement among observers was calculated for each ALIT outcome after each lecture was reviewed. Differences were resolved by consensus.

Results

- Expert feedback included the following suggestions:
 - Clarification of coding schemes and descriptions of active learning techniques
 - Evaluate the complexity of completing each active learning activity rather than the risk to the faculty
 - Refinement of a section to provide qualitative comment about faculty use of AL
- Over 11 drafts, a total of 27 modifications were made to the ALIT with the frequency of modifications decreasing over the course of the process. Changes included the addition of more AL activities, clarification of descriptors and a summary page for reviewer's comment.
- The average number of AL episodes, time to complete these episodes, and the average number of different types of AL are presented below. The % agreement among observers did not improve as experience with ALIT increased.

	Mean (Range)	% Agreement Among Observers
Total # Episodes AL Observed/ Lecture	13 (4-34)	88% (61-100)
Average Time per Episode of AL (mins)	2.2 (0.6 – 16)	87% (64-100)
# Different Types of AL Observed/Lecture	3 (2-5)	90% (67-100)

Conclusions

- Further testing of the ALIT is planned in both pharmacy and non-pharmacy classrooms with the goal of eventually implementing it university-wide.
- The ALIT provides a valid and reliable data driven tool utilizing quantitative and qualitative methods to capture actual versus perceived usage of active learning in classrooms.

References

1. Moffett BS, Hill KB. The transition to active learning: a lived experience. *Nurse Educator*, 1997;22:44-7.
2. Bonwell CC, Eison JA. *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University, School of Education and Human Development; 1991.
3. Accreditation Council for Pharmacy Education. Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree. <http://www.acpe-accredit.org/pdf/Standards2000.pdf/>. Accessed January 06, 2005.
4. Background Paper II: Entry level, curricular outcomes, curricular content and educational process. *Am J Pharm Ed* 1993;57:377-85.