

The following monograph recognizes four selected articles from the 2012 Fall conference. The editor would like to thank the authors for succinctly describing their teaching approaches. Special thanks to the reviewers who took their time to enhance the articles with their feedback.

The innovative approaches highlighted in this monograph are only a small example of the quality of instruction that takes place at the PASSHE Institutions. Enjoy!

Emerging and Innovative Teaching, Learning, and Assessment Practices To Ensure Student Success

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Early Alert Program: Measuring the Impact of Early Alert Initiatives

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ABSTRACT

The authors will explain the impact of the Early Alert Program at West Chester University. The Early Alert Program (EAP) was created as an early identification of students having trouble with targeted course material. Goals of the program include providing students timely support and direction to appropriate campus resources, encouraging students to use resources, assisting students in developing communication with faculty and staff, helping students learn self-advocacy skills, and making the college transition process more enjoyable by providing better opportunity for academic success. Graduate students from the Department of Counselor Education are chosen for internship and practicum positions and work one-on-one with students alerted in the program. The referral system helps faculty inform students, advisors, and the EAP with students' current grade if students have earned poor grades in the early part of the semester. In Fall 2012, the EAP counselors had 483 contact hours and received a favorable response from students served.

INTRODUCTION

An Early Alert System recognizes the importance of easing new students' transition into the college environment. Early systematic identification of those students who may be academically at risk, early identification of students who may be having difficulties in the classroom, and the establishment of a common communication link between students and their instructors, faculty advisors, and department chairperson is key in the Early Alert process (Lotkowski, Robbins & Noeth, 2004). Many students enter college underprepared for the rigor and discipline required by college courses and struggle to achieve in the first semester and "signs of struggling can range from failing an assignment to missing classes to not participating in class discussions" (Darling, Gordon & Pong, 2012).

The American Association for Higher Education has identified prompt feedback as one of the seven principles for good practice in undergraduate education. According to the Policy Center on the First Year of College, "early feedback on academic performance is important during the first semester" (Barefoot, 2003, p. 12). Results from the Second National Survey of First-Year Academic Practices Survey (Barefoot, 2003) found over 50% of institutions in all Carnegie categories report mid-term grades to students themselves and to a central office. Survey results also found "early intervention with students in academic difficulty can often make the difference between early departure and retention" (Barefoot, 2003, p. 13).

Analysis of five years of probation data showed more than three quarters of the students who were placed on probation each Fall semester had less than 15 credits, which indicates most of these students performed poorly during the first semester of enrollment at the University. Additionally, ten to fifteen percent of those students did not enroll in the following Spring semester, indicating poor academic performance is an important factor in student attrition. Focus groups conducted with students on probation showed the majority was not aware of the resources available on campus, and more than a third did not know they were failing. The Early Alert Program is a proactive system of communication and collaboration of professors, program staff, academic advisors, and University students. The goal of this program is to promote academic success for students by:

- identifying students having trouble with targeted course material,
- providing students timely support and direction to appropriate campus resources,
- encouraging students to utilize campus resources and communicate with professors, advisors and department chairperson,
- helping students learn useful self-advocacy skills, and
- making the college transition process more enjoyable by providing more opportunity for academic success.

We identify "High-risk" introductory courses and courses with high percentage of first-year students (see Table 1).

List of High-Risk Courses

Table 1

BIO 100-Basic Biology	MAT 103-Intro Mathematics
BIO 110-Gen. Biology	MAT 105-Algebra/Trig
CHE 100-Concepts of Chemistry	MAT 107-College Algebra
CHE 103-Gen. Chemistry	MAT 108-Brief Calculus
CHE 107-Gen. Chem. Health Sci.	MAT 110-Precalculus
ECO 111-Macro Economics	MAT 121-Statistics
ECO 112-Micro Economics	MAT Q00-Fund. Algebra
ENG Q20-Basic Writing	MAT Q01-Prep. Mathematics
HIS 150-The American Experience	PSY 100-Intro Psychology
WRT 120-Effective Writing	SOC 200-Intro. Sociology

All instructors of these courses are asked to report the status of their students. Students with C- and lower grades are identified and referred between the 4th and 12th weeks of the semester. The instructors input data on student progress through the PeopleSoft portal. Graduate students then contact Early Alert students and form a counseling relationship.

DISCUSSION

We expected the project would reduce first-year students placed on probation during the Fall semester by five percent, 77% in Fall 2008 to 71% in Fall 2011, and reduce the number and proportion of students placed on probation. This course summary from Fall 2011 includes the 201 participants, not the total 658 referrals who received alerts. Generated email letters to students can sometimes cause course improvements due to students making contact with their advisors and/or the Learning Assistance Resource Center without participating in Early Alert. We planned to assess the program as follows (see Table 2).

Project Assessment Plan
Table 2

Method	Timeline	Sources of Data
<i>Analysis of mid-point indicators:</i> <ul style="list-style-type: none"> ▪ Percentage placed on academic probation ▪ DFW rate in referred courses ▪ GPA after fall semester ▪ Fall to spring retention 	Throughout/end of Fall and Spring semesters.	<ul style="list-style-type: none"> ▪ Office of Institutional Research ▪ Special Assistant for Academic Policy ▪ Early Alert Program ▪ Registrar's Office
<i>Analysis of summative data:</i> <ul style="list-style-type: none"> ▪ First-to-second year retention rates ▪ Retention/graduation rates for subsequent years 	Snapshot date of Fall 2009 and six subsequent Fall semesters.	<ul style="list-style-type: none"> ▪ Office of Institutional Research
<i>Analysis of student response data:</i> <ul style="list-style-type: none"> ▪ Number and percentage of participants ▪ Evaluation surveys administered to each participant ▪ Perceived students' awareness of resources 	Throughout/end of Fall and Spring semesters.	<ul style="list-style-type: none"> ▪ Surveys (online) ▪ Focus group transcripts ▪ Internal data gathered by the project coordinators ▪ Student-reported data
<i>Analysis of usage and demographic data:</i> <ul style="list-style-type: none"> ▪ Number of referrals ▪ Number and percentage of participants ▪ Demographic distribution of participants 	Throughout/end Fall and Spring semesters.	<ul style="list-style-type: none"> ▪ Office of Institutional Research ▪ Early Alert Program ▪ Administrative Computing

Action Plan

We questioned who we are reaching, so we established a task force to look into reasons behind academic difficulty. We began contacting students who did not register during their designated appointment period, and we found many of them were having troubles their advisor might not catch. Items such as financial aid paperwork, No Grade (NG) changes had not been made by faculty, personal issues, and knowledge of registration processes were among the many we found students had issues with. Some changes made included changing the format of our Academic Recovery Plan (ARP), creating additional talking points for advisor, having a specific checklist of resources, monitoring students on continued probation, requiring meetings with EAP graduate assistants to monitor progress, requiring attendance to Academic Success Workshops

(ASW), and flagging students who check certain items on the list and providing referral to specific persons.

The role of the Coordinator is to oversee the EAP, supervise the graduate assistants, develop connections with academic departments and academic computing professionals, gather and analyze data, report results to appropriate support service directors, communicate with students, and provide support and referral.

The role of the Graduate Assistants is to gather the data generated by the faculty referrals, contact students via email, mail, and phone, gather information about all resources on campus, including programs in academic affairs and student affairs divisions, have individual meetings with students referred by the program to develop improvement plans, share information with instructors and advisors, develop and maintain the EAS website, and assist the Coordinator in the analysis and reporting of data.

Promoting Faculty Participation

The system generates a list of instructors teaching any section of the identified high-risk courses (see Table 3).

List of Instructors

Table 3

Term	Subject	Catalog	ID	Email
2121	BIO	110	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	BIO	110	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	BIO	100	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	BIO	110	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	BIO	110	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	BIO	110	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	CHE	103	xxxxxxx	xxxxxxx@WCUPA.EDU
2121	CHE	107	xxxxxxx	xxxxxxx@WCUPA.EDU

In order to promote greater faculty participation we determined conditions for faculty. For instance, faculty participation is voluntary. We chose to have Early Alerts for courses in which a large percentage of first-year students enroll (see Figure 1).

Sample Email Asking for Referrals Figure 1

Dear Dr. X:

We are continuing the Early Alert Program (EAP) this semester and we again request your referral of students who are not performing well in your class.

Thanks to your support in the fall 2011 semester, we had 658 referrals (an increase of 400%); 56% were Fall 2011 admits; and 75% were regular admits (either first-year or transfer). Also, 31% of students who received alert emails met with the graduate assistant (57% improved their grades). Furthermore, due to our partnership with the Residence Life and Housing staff, every referred student living on campus was contacted by their residence hall director. After further analyzing the data from last semester, we'll send you a summary.

Your course, BIO 110, is one of the targeted courses for the EAP.

Please refer students who have received a low grade on an exam or major paper, leaving the student in danger of earning less than a C- in the course. With just a few clicks of a button on a myWCU form connected to your class rosters, you can refer a student who is struggling to the personnel serving this program.

With just a few clicks of a button on a myWCU form connected to this class' roster, you can refer a struggling student to the personnel serving this program. For a step-by-step tutorial, please [click here](#).

The online form saves the work of entering student name and ID number. Faculty may also complete form on paper, and graduate students will enter information for faculty. Forms are short, but contain relevant information. Faculty are reminded with plenty of time and given a specific deadline for completing forms. A personal email is sent to the faculty member (see Figure 2).

Sample Confirmation Email Figure 2

Thank you for referring your students in MAT 121-12 to us.

Our program assistant, *Graduate Student Name*, will contact the students to provide information on the support services available to them and help them develop strategies that may assist in improving their academic performance.

Dr. Idna M. Corbett
Dean, Undergraduate Studies and Student Support Services

Chairpersons and deans are notified when the email goes out to faculty and the students, and asked to encourage faculty to participate (see Figures 3 and 4).

Sample Email Sent to Student
Figure 3

Dear Student,

It has come to our attention that you may be having trouble in the following course(s):

MAT 121 12, Instructor: Dr. X

Please call or email our program assistant, *Graduate Assistant Name*, as soon as possible, to make an appointment. She will meet with you to develop strategies that may assist you in improving your academic performance and provide information on the support services available to you.

Michelle's contact information is as follows:

- Email: earlyalert@wcupa.edu
- Telephone: (610) 436-2187
- Office Location: 223 Lawrence Center

We also encourage you to speak to your instructor about any concerns or discrepancies related to the courses listed above. Your instructor will best be able to indicate the possible contributing factors related to your academic standing in their course.

Again, when replying to this email, direct your concerns to: earlyalert@wcupa.edu. We look forward to working with you towards your success.

Dr. Idna M. Corbett

Dean, Undergraduate Studies and Student Support Services

Sample Email Sent to Advisor
Figure 4

Your advisee, *student name* was referred to the Early Alert Program by the instructor concerning progress in MAT 121 01. The impetus behind the Early Alert Program is to provide appropriate support services and strategies for the student who may be experiencing problems that may interfere with academic success. Therefore, it is important for the advisor to also contact the student and invite her/him in for a discussion of the concern.

Please encourage your advisee to contact our program assistant, *Graduate Assistant Name*, as soon as possible, to make an appointment. The Graduate Assistant's contact information is as follows:

- Email: earlyalert@wcupa.edu
- Telephone: (610) 436-2187
- Office Location: 223 Lawrence Center

Thank you for your continued collaboration in support for student success.

Regards,

Dr. Idna M. Corbett

Dean, Undergraduate Studies and Student Support Services

Others who received information include advisors, resident directors, coaches, counselors in special admission program, and the Office of Multicultural Affairs (*Mentoring Program*). The goal is to have four to five contacts for each student.

CONCLUSION

We were able to make significant changes from the Spring semester to the Fall 2012 semester. Students from Early Alert or continued probation were asked to complete an evaluation of the services received from the Early Alert Graduate Assistants (GAs). On a scale of 0-5, 5= Strongly Agree and 0= Strongly Disagree, when asked whether the students' primary concerns were addressed in their meetings, the average response was 4.74. When asked whether services received were helpful, the average rating was 3.83. When asked whether the students would recommend the LARC to other students, the average rating was 4.79.

During Fall 2012, the Early Alert Program GAs held face-to-face meetings with 208 students, comprised of 150 Early Alert students and 58 of the 62 Continued Probation students. The GAs had 513 meetings with these students: 236 meetings with Early Alert students and 277 meetings with Continued Probation students. In addition, the GAs had 158 phone contacts with students: 96 with Early Alert students and 62 with Continued Probation students. 2,460 email contacts with students were made: 1,420 with Early Alert students and 1040 with Continued Probation students. Of these contacts, 703 were substantive e-mails, 342 for Early Alert students and 361 for Continued Probation students. All of these contacts added up to about 483 contact hours, with 228 hours spent with Early Alert students and 255 spent with Continued Probation students.

GAs completed an intake forms for each of their students. Of the students seen by the Early Alert GAs, the reasons for academic difficulties were as follows: 47% due to study skills, 40% due to lack of preparation, 28% due to a need for a tutor, 27% due to time management skills, 26% due to adjustment to college, 23% due to test-taking skills, 17% due to personal issues, 10% due to lack of attendance, 9% due to living situation, 2% due to financial issues, and 2% due to other factors. When students initially came to meet with GAs, nearly 44% were not using any on-campus support services, 36% were using LARC services (tutoring), and 5% were using Smarthinking.

The GAs referred students to additional resources, including: 59% to Smarthinking, 51% to the LARC, 32% to Professors' office hours, 25% to Academic Success Workshops, 22% to the Math Club, 10% to the Alchemist Club, 10% to the Career Development Center, 9% to academic advisors, 4% to the Writing Center, 2% to the Counseling Center, 2% to the Diversity Workshops, 2% to OSSD, 1% to Financial Aid, and 1% to the Registrar.

Sixty-one percent of the students lived on campus and 39% of the students are commuters; 27% of the students transferred into WCU (73% began their undergraduate career at WCU); 14% of the students seen were student-athletes while 86% were not; 37% of the students have full or part-time jobs, 12% of the students are not employed,

but were looking for jobs, and 51% of the students did not have jobs and were not looking for jobs.

TAKE AWAY MESSAGES

- Students should seek forms of Early Alert processes on their campus. These can be in the form of asking professors for interim grades, registering for tutoring, using disabilities accommodations, seeking services from key campus resources, such as Financial Aid, Registrar, Bursar, and Counseling.
- Faculty should provide students with their interim grades and determine best methods of assistance for students, as well as create teaching materials in a variety of formats to account for learning differences.
- Advisors and Administrators should consider individualized assistance for students, since the blanket areas of study skills, financial aid, and tutoring are fitting the needs of the majority, but missing the needs of other students, causing retention issues.

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Stepping Back to Go Forward

By

Alison Downie (Indiana University of Pennsylvania)

INTRODUCTION

An endlessly compelling teaching challenge, and one I regularly discuss with colleagues within my department and across disciplines, is the task of creating a dynamic balance between two essential educational goals I have for students, which require quite distinct teaching methods. The first essential goal is that students gain accurate information regarding course content, which often requires substantial “un”-learning of assumptions they bring to class. Though acquiring information is necessary, it is not sufficient as an educational goal because it does not necessarily result in lasting learning. The second goal, therefore, is that students exit the course being able to use their new knowledge as they employ critical thinking about this content.

Although the following discussion and examples of class activities are specific to the World Religions course I teach in the Religious Studies Department at Indiana University of Pennsylvania, the pedagogical challenges of achieving these two educational goals are shared across disciplines, particularly by those teaching large introductory courses.

My first educational goal demands that I work to make complex material engaging and accessible to classes of, in my case, fifty or sixty students, most of whom are non-majors, of widely differing attitudes and aptitudes. As is expected in many introductory courses, most students have never taken a course in my discipline and likely would not do so, if the class did not meet a core curriculum requirement.

An additional challenge in Religious Studies is that students are often not even aware that studying religious traditions is a robust and dynamic academic discipline. Students frequently enter this course assuming either that the professor will be bent on proselytizing or demolishing particular faith convictions. As a result, before turning to information about particular religious traditions, I must first help students to understand what the scholarly study of religion entails.

As a Religious Studies professor, my goal is to help students understand the historical development, traditions, world views, and diverse practices of major religious traditions. The academic study of religion is concerned neither with conversion nor iconoclasm, but with a deeper understanding and analysis of various traditions and their continuing impact in the world. The World Religions course is one of the most valuable classes students can take as they expand their horizons beyond their immediate family

and community backgrounds and gain broader awareness and appreciation of global difference.

After a broad introduction to the academic study of religion, including overviews of foundational concepts such as theories of the sacred, myth, symbol, and ritual, I typically include five or six major traditions in the semester, which works out to about two weeks per tradition. As all professors of introductory courses do, I select what I will require students to understand from a massive amount of material, with the first essential goal that students acquire accurate information about these religious traditions.

In order to achieve this goal, carefully structured, clear explanations are necessary. Developing such presentations for students who have no background (and perhaps little interest) in the subject matter takes a great deal of careful effort. I can take nothing for granted, not even the most basic vocabulary and concepts, such as knowing that places of worship for Muslims and Jews are not “churches.”

Although I use a reader-friendly textbook, students need assistance understanding their reading about complex concepts and world views. An additional pedagogical challenge is that students also often struggle with their motivation for encountering perspectives they disagree with or find threatening for a variety of reasons.

If students simply memorize vocabulary and definitions from various traditions and forget these as soon as exams are completed, they will not have truly encountered the perennial human questions of meaning and value which the world’s faith traditions explore. I work to challenge students to really encounter these different ways, which they often find strange, disruptive or even threatening. Since deeper understanding is also an essential educational goal, I do not want the course to sacrifice depth of meaning and thought to accessibility. As a result, while on one hand, I work to make the complex simple, I also work to resist the simplistic.

All the traditions we study in the world religions course are living faiths in which people create meaning in myriad ways as they continue to develop and interpret ancient traditions. Since memorizing information is less existentially disruptive than wrestling with difficult meaning-questions, resisting the simplistic often entails prodding students to engage in questions they may wish to avoid. In my experience, it is often more difficult to help students be willing to entertain questions, to be willing to explore and to probe, than to memorize new information. Engaging perennial meaning-of-life questions requires much more of us than memorizing flash card definitions.

Frequently, students have a primary goal of mastering the right answer in order to achieve a high grade. This is often how they have been trained to define learning. But my goal for students is not only remembering right answers, in the sense of attaining accurate information. As with most professors, a profoundly important goal I have is the task of helping students gain understanding. In the World Religions course, this includes valuing the process of asking questions, especially those meaning

questions which must be asked and explored over and over during the course of one's life.

Achieving these two quite different educational goals of information and understanding requires navigating a balance between two poles. At one end of the spectrum, I must provide enough explanation and straightforward information to keep struggling students from getting lost and giving up. At this pole, my effort is directed toward clarity in lecture, clear study guides for exams, and so on. At the other end of the spectrum, I also ask the class to encounter complexity in the form of big questions which have no clear or easy right answers.

To fuel a dynamic tension between gaining clarity and pondering enduring questions, I work at designing class activities which intentionally expose the complexity of class material. Since students often rush to memorize "right" answers, I must reverse the direction of my thinking in terms of clear explanation and, instead, intentionally muddy the waters by asking students to confront meaning problems. This strategy is grounded in the contemporary scholarship of teaching and learning, which stresses learner-centered approaches which engage students in active learning.

BACKGROUND

Professors of all disciplines can benefit from familiarity with the robust literature of learner-centered pedagogy. Publications such as *The Teaching Professor*, *The National Teaching and Learning Forum*, *Journal on Excellence in College Teaching* and the IDEA center papers are among these well-known resources. In my own discipline, *Teaching Theology and Religion* is an excellent journal for deepening theoretical reflection and considering practical class strategies.

A broad consensus in the scholarship of teaching and learning is that students do not retain information unless they have connected it to their experience in some way.¹ Learning which lasts is constructed by the learner, not passively received. Investigating pedagogical literature has helped me recognize that the two educational goals which often seem to pull me in opposing directions are united in a broad context of a learner-centered pedagogy.

Accurate information about various world religions will not truly be part of a student's world unless the student has engaged with the larger demands of encountering many different perspectives regarding the meaning of human life. As I invite students into active and transformational learning, I must create tasks in which they work with course concepts and questions.

While clear presentations remain foundational in large classes, they can encourage passivity. To counter this drift, I punctuate lecture in many ways, one of

¹ A sampling of articles helpful to me in this vast literature includes Barr, R. B., & Tagg, J. (1995). From teaching to learning--a new paradigm for undergraduate education. *Change*, 27(6), 13-25; Doyle, T. (2008). *Helping students learn in a learner-centered environment: A guide to facilitating learning in higher education* (Sterling, VA: Stylus); Millis, B. J. (2010). Promoting Deep Learning, Idea Paper No. 47. Idea Center Kansas State University; Grossman, R. (2008). Structures for facilitating student reflection, *College Teaching*, 57 (1), 15-22; Boys, M. C. (1999). Engaged pedagogy: Dialogue and critical reflection, *Teaching Theology and Religion* 2 (3), 129-136.

which is designing activities which complicate and confuse, sometimes even arouse frustration, as I ask students to use their newly memorized vocabulary words, such as karma, jihad, incarnation, and so on, in class exercises. While the content of the examples which follow are particular to my course, I have learned strategies from professors across many disciplines and offer these examples in order to join in the ongoing dialogue on creating learner-centered classes.

DISCUSSION

One effective strategy is posing questions which students answer by writing, silently and privately, in their class notebooks. They are not required to share their responses with anyone, including me, but I may take class time to ask them to take a few moments for reflection. An example of such a question is, “What is sacred to you and why?” When students become aware of whether or not the sacred is a meaningful concept to them, they are more likely to want to understand how others think about and experience the sacred.

When students focus on memorizing “answers” in the sense of information, without experiencing the larger significance of the very information they work to master, they are eager to skip over meaning problems. In order to help students across a bridge into deeper understanding, in class activities require students to encounter a problematic gulf. In exposing or creating problems with the material, or in asking students to define a term for themselves, I am asking students to work through a question, so that they will construct their own learning. Unless they resonate to some extent with the significance of a question, the “answer” will have no meaning context for them and, as a result, will likely be easily forgotten. When these in class activities are successful, then students have, to some extent, engaged in critical thinking and discovered something for themselves.

In order to create in class activities for pairs or small groups, my preparation moves in reverse of my thinking pattern while preparing a lecture. This shift in thinking is quite a significant change and requires a great deal of time and effort. I find this activity much more demanding and challenging than preparing a presentation

To design collaborative activities, based on prior teaching experiences, I anticipate likely student misunderstandings or identify an aspect of our material I believe students tend to rush through too quickly, without fully encountering its complexity. Constructing these activities requires me to step back out of my familiarity with the material in order to identify apparent contradictions or inconsistencies within it, with which I then ask students to wrestle. Additional strategies which help me do this are playing devil’s advocate with the concept in my head, recalling competing interpretations of material from my areas of research, and remembering my own stumbling blocks in my first learning encounters.

At the beginning of the term and/or as we begin to study a particular religious tradition, I regularly use an activity I call “What Do You Know?”² In their notebooks,

² Downie, A. (2013). What do you know? *Teaching Theology and Religion*, 16 (1), 50.

students privately assess as true or false a series of statements about a faith tradition which I present in power point. The statements vary from straightforward demographic information to interpretive issues. Examples include these statements: "Most Muslims are of Arabic descent" (which is false; about 20% of the worldwide Muslim population is of Arabic descent). "Christians believe evolution contradicts the Bible." This statement can launch a discussion about diversity within traditions, as Christian groups differ on this, depending upon how the Bible is interpreted. As students are forced to assert true or false to each sentence, they encounter their own assumptions, which may or may not be accurate.

I use this as a private exercise because most people without background in studying religious traditions discover they do have inaccurate assumptions about various faiths. The activity is designed to expose these without embarrassing anyone and has proven effective for engaging student interest. Depending upon the class atmosphere, I may ask students to volunteer their answers and at these times, a lively discussion often ensues. The activity opens up opportunity for reflection regarding why inaccurate perceptions are common, why it is important to have more accurate understandings, and what students wish to learn about a particular faith tradition.

For paired or small group collaboration, I often frame a question which asks students to work with an apparent inconsistency within a religious tradition's beliefs. The goal of these exercises is to introduce students to the complexity of interpretive issues within faiths and to diversity within traditions. In these exercises, if students have done the assigned readings and attended previous class sessions, they have the building blocks of information needed to address the question. The question asks them to put these blocks together in a new way, often to apply a theoretical concept to a particular case. If students cannot use the concept or recognize an example of a concept, then I can identify gaps in their learning. In addition to providing opportunity for active learning, these activities are diagnostic assessments for me to see strengths and weaknesses in student understanding.

In order to provide an example of one such small group activity used, a brief explanation of some course material is necessary. The Hindu holy text, the *Bhagavad Gita*, opens with Prince Arjuna looking out in despair over a field in which a battle is about to ensue. Arjuna is torn apart by conflicting duties. His legitimate royal rule has been contested by cousins who are advancing to seize his throne. The imminent battle will cause death to beloved family members. He does not want to fight.

As Prince Arjuna pours out his anguish in prayer, the man he had taken to be his chariot driver turns out to be Krishna, the God Vishnu in human form, come to earth to be of aid. The rest of the story is a dialogue between Arjuna and Krishna, during which Krishna explains that the prince must do his duty and fight this battle.

Once students understand this basic information about the *Bhagavad Gita*, I remind them of what they know about Mohandas Gandhi (1869-1948). He was a faithful Hindu who ate a vegetarian diet because of his firm belief in ahimsa (causing no harm).

He developed his teachings about nonviolent resistance out of his Hindu tradition. I then pose the following question for students to discuss in small groups, “How could Gandhi hold to the *Bhagavad Gita* as a sacred text when the divine Krishna advocates war in it?”

It is a difficult question for students because, although by this point in the term they have memorized definitions of myth and symbol, they generally cannot arrive at the conclusion that Gandhi interpreted this text symbolically (even though the textbook has told them this). In Gandhi’s reading, the physical fight Krishna enjoins Arjuna to take up is not a sanctioning of physical violence but a metaphor for the battle all humans must take up, which is to know and perform our distinct duties in life, even when these are costly. As we discuss this question, students gain a deeper understanding of myth and how it functions, which they are likely to think they have already mastered, since they memorized the definition at the beginning of the course.

TAKE AWAY MESSAGES

Although the examples given here are content specific, I know that sharing educational goals and challenges, as well as pedagogical strategies, across disciplines can benefit those in other fields because I have learned so much from others. My teaching has been enriched by participation in Teaching Circles, attendance at teaching workshops, countless discussions with colleagues of varying disciplines, and my own research in the scholarship of teaching and learning. In all of these activities, I have benefitted from and have been energized by ideas from professors who teach quite differently than I, in quite different content areas.

In this collaborative spirit, I have shared examples from my World Religions course in order to spark ideas and fuel further discussion. Professors of large introductory classes face many similar teaching challenges, only one of which is achieving the balance I have described between clarity and complexity. For me, the more difficult task of the two has been stepping back out of my tendency to concentrate on clear presentations. While those are still necessary, pedagogical scholarship provides clear consensus that deep and lasting learning must be active. Although students often prefer and press for more of this, a danger of too much explanation is that it perpetuates passivity.

It is challenging to develop active learning strategies for large introductory classes. I have shared a few activities which have worked well in my classes because I find dialogue with colleagues an important avenue for continued development as a teacher and similar strategies can be useful across content areas. Professors of any discipline can identify common false assumptions or misunderstandings about their material and develop an activity similar to what I have called “What Do You Know?” In addition, requiring students to apply theoretical concepts to analyze a meaning problem or address a question is a standard strategy for promoting critical thinking which

professors use regularly in a variety of ways. The specific examples offered here are intended to spark pedagogical creativity as we continue to incorporate research on how people learn into our classroom strategies.

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**Undergraduate Student Service Learning:
Bringing Brain Awareness Week to Local High School Students**

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ABSTRACT

Service learning is a high-impact educational practice that allows students to apply what they learn in the classroom to a real-world experience within their community. In this case, 19 undergraduate students enrolled in an upper-level Psychology course worked collaboratively to create interactive activities to be presented to local high school students as part of a larger initiative called Brain Awareness Week. This article outlines the steps required to design, implement, and assess this service-learning project. While the details may be of particular interest to those teaching courses in Psychology and Biology, the broader purpose of the article is to provide a general framework for those wanting to introduce a similar service-learning opportunity for their undergraduate students within their community. The outcomes of this particular initiative demonstrated the immense value gained by both the high school students and the undergraduate students who participated. In particular, high schools students reported high levels of enjoyment of the initiative. Furthermore, the undergraduate students reported gaining deep understanding of the course material as well as gaining a sense of meaning and purpose by using their expertise to teach and inspire others.

INTRODUCTION

According to the Association of American Colleges and Universities (<http://www.aacu.org/>), high-impact educational practices can improve undergraduate student outcomes such as retention, deep understanding, and grades. Of ten high-impact practices mentioned by the AAC&U, some may require systems-level changes within an institution (e.g., first-year seminars, common intellectual experiences, learning communities, internships, capstone courses), while others can be more easily incorporated at the classroom level (e.g., writing-intensive courses, collaborative assignments, undergraduate research, global learning, and service learning). There are likely many reasons why high-impact educational practices increase student outcomes. Kuh (2008) suggested that increased time on task, meaningful interaction with faculty, continuous faculty feedback, working with diverse populations, applying learning to diverse situations, and gaining a better understanding of oneself as some of the reasons why high-impact practices are particularly effective.

The high-impact practice I have chosen to highlight in this article is service learning. According to the National Service-Learning Clearinghouse (<http://www.servicelearning.org/>), service learning is “a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.” The service-learning opportunity I designed for undergraduate students enrolled in my upper-level Psychology course required them to work collaboratively to create content-related interactive activities that they then presented to local high school students. In this article I have outlined how I designed, implemented, and assessed the service-learning project. My goal is to provide enough detail to aid others who wish to integrate a similar service-learning opportunity into their own course.

BACKGROUND

In 1996 The Dana Foundation organized and funded an international campaign called Brain Awareness Week (BAW) with the purpose of helping to improve awareness of the progress and benefits of brain research (<http://www.dana.org/brainweek/>). Seventeen years later more than 2,800 partners in 82 countries around the world now participate in the BAW campaign each March. While I first participated in BAW as a graduate student in Montréal, Canada in 2002, I started BAW at Bloomsburg University of Pennsylvania in March of 2011. We are now one of only about a dozen universities in Pennsylvania to hold BAW events (for full list see <http://www.dana.org/brainweek/list/list.aspx?cat=&con=&sta=PA>).

Through Bloomsburg University’s BAW events we hope to increase awareness of the brain and neuroscience research both on- and off-campus. Our on-campus initiatives have included keynote lectures (e.g., Perspectives on language processes and disorders) and panel discussions (e.g., Understanding the brain throughout the lifespan, Meditation and the brain, Making your mind an ally). These events have been supported

by the College of Liberal Arts and the College of Science and Technology, as well as student organizations including Psychology Association and the National Student Speech-Language-Hearing Association. Our on-campus initiatives have reached nearly 600 undergraduate and graduate students from 27 different majors on campus.

Our off-campus initiatives have included outreach to local schools within our community. In our first year, 12 undergraduate Psychology majors volunteered their time to create interactive brain-related activities for 5th and 11th grade students. Those undergraduate students then taught the activities to 30 Psychology student volunteers who visited three local elementary school classes and two local high school classes. At the local schools, the 5th and 11th grade students were split into groups of three or four. Activities were set up as stations with one or two Psychology major volunteers at each. Groups of students rotated from station to station every 5 to 10 minutes. Upon completion of all stations, local school students rated the program in a short survey. With support from the College of Liberal Arts and The Dana Foundation we reached 107 students our first year.

In Bloomsburg University's second BAW we wanted to increase our outreach to students at local schools. Because our first BAW event had been successful, we were invited to a second local elementary school and a local middle school, increasing our total outreach to 141 students. In order to facilitate this increase in outreach and to provide undergraduate students with the opportunity to engage in a high-impact educational practice, I chose to include a BAW service-learning component in my upper-level Psychology capstone course. The sections that follow describe how I designed, implemented, and assessed the service-learning project as well as the outcomes of the project.

DESCRIPTION AND OUTCOME OF SERVICE-LEARNING PROJECT

Design of the Service-Learning Project

Nineteen undergraduate Psychology majors, most of whom were Seniors, were enrolled in my Sensation and Perception capstone course in Spring of 2012. In preparation for the BAW service-learning project, students read the book "See What I'm Saying" by Lawrence Rosenblum (2011) during the first 5 weeks of class. Based on the research presented in each chapter of the book, students created experiments that they conducted on their fellow classmates. After collecting data from their classmates and analyzing the results, students presented their findings to the entire class. After each student had presented, I surveyed all students in the class to ask which of the activities they wanted to present to high school students during BAW for the service-learning component of the course. As a group they chose the six activities they thought would be most compelling to high school students (see Table 1). During the next week of class, groups of 3-4 students created an informational poster about their chosen activity and wrote a script that they could use to organize their thoughts about the activity. They also created a list of any materials they would need for their activity which I then purchased with grant money provided by the College of Liberal Arts.

Table 1: Descriptions of six activities chosen for local high school students

Activity	Description
Influence of color on taste perception	Jell-O is dyed a color that does not match its flavor (e.g., red pineapple). Sight often influences taste perception, so people show difficulty determining the correct flavor.
Influence of labels on smell perception	Two covered cups with the same object (e.g., parmigiano cheese) were given two different labels (i.e., cheese, vomit). People often rate negatively labeled scents as less pleasant.
Influence of sight on touch	A small paint brush is used to simultaneously stroke a person's hidden hand and a rubber hand the person can see. The rubber hand often starts to feel "part" of a person's body.
Audio-visual interactions	When presented unmatched auditory sounds (BA) and visual lip movements (GA), people often perceive a combination of the two (DA). Known as the McGurk effect.
Visual distortions	Prism goggles distort visual perception by 30°. Through plasticity the brain can adapt to and compensate for the distortion when tossing bean bags at a target.
Sheep brains	Review anatomy of the human brain using sheep brains as a model.

While creation of the high school BAW activities occurred during class time or on students' own time, the timing of the outreach component of the service-learning project was inflexible due to the strict availability of the two high school classes. Students in the Sensation and Perception course were informed of the date and times (which did not overlap with our usual class time) they would be required to go to the high school a few weeks before the event. They were given a choice of two different times and were required to attend only one. If a student had to miss a class in order to participate in the project, I wrote students a letter asking for their professor's understanding in the matter. While I do not condone missing class, I did consider this unique opportunity to be a university-sanctioned event that warranted an excused absence. Overall, the service-learning project accounted for 12% of students' final grade as outlined in the course syllabus.

Implementation of the Service-Learning Project

The first step in implementing the project was receiving permission to enter the classrooms at local schools. During our first year, initial contact with local school teachers occurred through undergraduate student connections (i.e., a student's parent worked in a local elementary school, and a student's former teacher worked in a local high school). We thought this was the easiest way to start our initiative. In our second year, we contacted the local high school teacher through e-mail, which was also effective. When contacting the local school teachers, I provided them with background information about the international BAW campaign. I also provided them with the curriculum we planned to bring to their classroom including a description of the interactive activities and the scripts. Finally, I informed them of their responsibilities

which included providing a suitable room with tables and chairs as well as allowing their students to provide anonymous written feedback about the program.

One of the biggest challenges to overcome was getting all of the undergraduate students to the local schools. Most of the schools were not in walking distance and required transportation. As there is no mass transit in Bloomsburg and many students lacked vehicles, we organized a carpool system. In the future we may consider using Bloomsburg University-owned vans to transport students. Parking was also a challenge because most schools had strict rules about where we could park. Finding out about such rules in advance can be very helpful.

At all of the schools we visited, security was a top priority. To be identifiable as visitors we created brightly colored BAW t-shirts that volunteers were required to wear while at the schools (Figure 1). The t-shirts were funded by a grant from the College of Liberal Arts. All volunteers arrived at the school as a group, signed in at the main office, and traveled to the appointed room as a group. At some locations, students were required to also wear guest passes.



Figure 1: Sensation and Perception students in their BAW t-shirts

We arrived at the appointed room before the local students arrived for their class. Volunteers arranged the furniture to create six stations (Figure 2). Then when the high school students arrived, they were split into groups of 2 to 4. Each group started at a different activity station. After completing the activity for 7 to 8 minutes a whistle alerted students to move to the next station. If an activity ended before the whistle was blown, undergraduate students were encouraged to engage in conversation with the high school students about what it is like being a university student. High school students were encouraged to ask questions about university life.



Figure 2: BAW volunteers and high school students interacting at different stations.

Assessment of the Service-Learning Project

After completing all six stations, students were asked to fill out a post-assessment survey that had received approval from Bloomsburg University's Institutional Review Board. In the survey, students anonymously reported their favorite activity including why it was their favorite, and one thing that they learned about the brain that day. Students also rated their enjoyment of the event, whether they would suggest the event to a friend, and if they wanted to participate again next year, all on a scale of 1 (not at all) to 10 (a lot). Finally, students reported whether they owned a helmet and, if so, how often they wore it in order to assess whether helmet safety would be an appropriate activity for next year's BAW event. After completing the survey, students received brain-related souvenirs including information booklets, pencils with brain erasers, brain stickers, brain hats, and brain bookmarks most of which were acquired for free through the Dana Foundation (<http://www.dana.org/brainweek/>). To our surprise, the high school students were very enthusiastic about their souvenirs and their teacher reported that the students wore their brain hats around school all day.

At the next meeting of the Sensation and Perception class, 18 of the 19 undergraduate students completed an outcomes assessment survey. Students reported their enjoyment of the experience and whether they would want to participate again next year both on a scale of 1 (not at all) to 10 (a lot). In order to encourage self-reflection, students were also asked to report something they learned about the course content through participating in the service-learning project, something they learned about themselves, whether they found the experience valuable, and suggestions for improvement.

Outcomes of the Service-Learning Project

Twenty-eight high school students participated in the BAW event. They reported mean enjoyment ratings of 9.3 out of 10, a mean rating of 9.0 out of 10 for suggesting the event to a friend, and a mean rating of 9.5 out of 10 for wanting to participate again next year. Their two favorite activities were the Visual distortions (i.e., Prism goggle activity) and the Influence of color on taste perception (i.e., Jell-O activity).

All 19 students in the Sensation and Perception course earned full credit for their participation in the service-learning project because they all demonstrated outstanding work. Furthermore, none of the students voiced concerns or complaints about the requirement to participate outside of class hours. The undergraduate students also reported a high level of satisfaction with the BAW program. The mean enjoyment of the experience was 9.3 out of 10, and their mean willingness to participate again next year was 9.8 out of 10.

Qualitative feedback from undergraduate students was also quite positive. When asked what students learned about the course content by participating in the service-learning project, the vast majority of students mentioned gaining a deep understanding of the course material by having to present it to others. Student comments included:

“I explained where and what the hypothalamus does to the point that I feel I will never forget it!”

“All of the experience I’ve had with the sheep brains has helped me so much to be able to point out all of the parts of an actual brain and its function.”

“We often learn something but then kind of dismiss it and forget about it. Just talking about my topic and hearing other students discuss their topics acted as a refresher of the content.”

When asked what students learned about themselves through the BAW experience about half mentioned overcoming fear of public speaking such as:

“Talking in a group setting is not as intimidating as it seems.”

“At first I was nervous because I was unsure how high school students would react. However, I noticed I can work well with students, and I had fun talking with them and giving them advice”.

Many others mentioned the joy they experienced in teaching others such as:

“Teaching the topics to the students reminded me of why I declared Psychology as a major.”

“I loved teaching these kids – I am now thinking about a teaching career.”

“I really enjoy teaching others about something that I love and find interesting”.

When asked about the value of the BAW experience, all students responded positively. Many students mentioned the value of having a positive impact on the lives of high school students such as:

“Not only did BAW inspire kids to ask questions but it also gave students the opportunity to ask questions about college. This made me feel better about myself and more useful.”

“I’ve heard some kids mention how what we do is cool and interesting and they may want to pursue Psychology in the future. If we can help persuade them or give any tips/advice, I think that’s very valuable.”

“It made me feel good knowing I can teach something and have people understand it.”

Other students reported that they improved their learning by applying their knowledge outside the classroom such as:

“I got to experience teaching other people what I know and learned in my higher-level Psych classes.”

“I realized I learn the info better when I’m consistently teaching it to someone else.”

“It is one thing to take notes and fill out an exam, but to have to present material in an informative yet creative way, core material must be truly understood.”

Finally, one student aptly summed up the service-learning project by saying:

“This experience is great because it has so many components -- educating, interaction, communication, fun, working within a group, and working with a diverse audience.”

Students’ suggestions for improvements were thoughtful and appropriate and included allowing for more time for each of the activities, more space for some of the activities like the Visual Distortions activity (i.e., Prism Goggles), and a quieter environment for the Audio-visual interactions activity (i.e., McGurk effect).

DISCUSSION/CONCLUSIONS

The purpose of this article was to present detailed information about how to design, implement, and assess a service-learning opportunity for undergraduate students. Nineteen upper-level Psychology students presented brain-related activities to local

high school students during Brain Awareness Week (BAW) 2012. The outcomes of the project suggest that it was very successful. Local high school students rated the program highly and we have been invited back to the school this year for BAW 2013. In fact, the program may have indirectly acted as a high school recruitment tool. It will be interesting to follow up on this possibility. Furthermore, undergraduate students also rated the program highly and reported deep learning of course content as well as a sense of purpose and meaning in their participation.

In an AAC&U publication, Brownell and Swaner (2010) suggested five best practices to facilitate a successful service-learning program. These included (1) connecting course content with the service-learning experience, (2) requiring enough work to make the experience significant, (3) ensuring quality and direct contact with those who are being served in the community, (4) overseeing activities at the service-learning site, and (5) allowing students to reflect upon their service-learning experience. All five of these best practices were integrated into the service-learning project I presented in this article, which may have been why it was particularly successful. Students (1) explicitly linked the service-learning project with course content in the first 5 weeks of class, (2) spent several weeks preparing for the service-learning project, (3) were accountable for the quality of their work because they had to present directly to the high school students, (4) were supervised by me at all stages of the project, and (5) reflected on their experience through an outcomes assessment survey. Educators can keep these best practices in mind as they create their own service-learning projects.

Not only did this service-learning project prove to be beneficial to local high school students and undergraduate students, but it also created another high-impact practice opportunity, undergraduate research, for BAW student leaders. Two undergraduate student volunteers who demonstrated exemplary work during BAW were chosen each year to help prepare a poster presentation of our BAW outcomes. The students analyzed the outcomes assessment data and submitted an abstract to the international Society for Neuroscience conference. Both abstracts were accepted to be presented at the Annual Brain Awareness Week Campaign Event at the Society for Neuroscience Conference (Washington, D.C. in Fall, 2012 and New Orleans in Fall, 2013). At the conference, students were able to learn about BAW events at other locations around the world, were able to learn about world-class research in the field of neuroscience, and were able to speak with current graduate students and potential graduate school advisors.

TAKE-AWAY MESSAGES

- Service learning is a high impact practice that can be integrated easily into any course syllabus.
- I presented steps to help design, implement, and assess a service-learning project for undergraduate students.

- I provided an example of a service-learning project in which upper-level Psychology students created content-related interactive activities and then presented them to local high school students.
- Outcomes of the service-learning project revealed tremendous value for both the local high school students as well as the undergraduate students. In particular, undergraduate students reported enhanced deep understanding of course material as well as gaining a sense of meaning and purpose through applying their knowledge in service of others.

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Powerful Teaching with Portable Technology

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ABSTRACT

The authors will discuss how portable technology is revolutionizing education. First, they will share a brief overview of the theory underlying technological inclusion in education and m-learning (mobile learning), most notably Mishra and Koehler's (2006) TPACK model and its implications for satisfying current educational standards. Second, they will discuss iPad applications (or apps) like Google Translate and iLearnChineseLite that allow users to practice speaking and writing Mandarin Chinese (Amax Technologies (Guangzhou) Co., Ltd., 2011; Google, 2011). Third, they will discuss iPad apps like Medscape Mobile, a drug and disease database app for the iPad, and Visible Body, a three-dimensional anatomy-modeling iPad app (Argosy Publishing, Inc., 2011; WebMD, 2010). Fourth, they will conclude by generalizing the discussion of iPad apps to exemplify other possible uses in modern teaching practice.

INTRODUCTION

The utilization of technology in education has been addressed by, among others, Mishra and Koehler in their Technology, Pedagogy, And Content Knowledge (TPACK) model (2006). This model emphasizes the interplay between teachers' knowledge of new and varied types of technology, proper pedagogy or instructional delivery methods, and subject area content. According to Mishra and Koehler, the addition of technology radically impacts teacher efficacy, and it is exactly this transformation which is sorely needed in contemporary education (2006). In fact, state and national educational standards address this very issue. Teachers need to employ technology in order to aid students to communicate in and work in a global environment, transfer problem-solving capabilities to novel situations, and access large amounts of information quickly and easily (International Society for Technology in Education, 2008; Pennsylvania Department of Education, 2010).

With the influx of handheld technologies, including portable digital assistants (PDAs), iPads, and iPhones, teachers can now foster students' usage of technology while on-the-go (Eisele-Dyrli, 2011; Franklin, Sexton, Lu, & Ma, 2007). This mobility brings a new dimension to the traditional learning model and even the avant-garde technologically enhanced educational paradigm (Phillips, 2003). In fact, m-learning, or mobile learning, enables greater social interaction, individuality, and adaptability, all prime factors in education (Peters, 2007). Other benefits of m-learning include nearly ubiquitous access, easy setup and use, and reduced cost (Kim, Mims, & Holmes, 2006). These benefits reflect why m-learning is gaining in popularity in the early twenty-first century.

BACKGROUND

There are a plethora of fields in which to utilize m-learning. Here we focus on two, English Language Learners (ELLs) and healthcare education. Globalization is increasing the demand for oral and written proficiency in English, and the exponential rate of technological advancement makes portable technology more and more ideal for meeting this need (Walia, 2009). Butler-Pascoe and Wiburg proposed some attributes of how technology enriches the second language learning environment, such as providing interaction, using task-based and problem-solving activities, enhancing development of English language skills, using multiple modalities to support various learning styles, meeting students' affective needs, and encouraging understanding and appreciation of both the target and native cultures (2003).

Healthcare has recently been revolutionized by technology; thus, healthcare providers are seeking new ways to incorporate technology into practice to improve quality and enhance patient safety. Providers are required to possess the knowledge necessary to make effective decisions at the point of care. In response to this, the National Committee on Vital and Health Statistics (NCVHS) is establishing an infrastructure for healthcare that will help providers and patients access and communicate healthcare information in a timely manner (U.S. Department of Health and Human Services, 2001). The NCVHS speaks to the need for healthcare providers to be skilled in the use of technology to enhance their ability to make effective decisions based upon current best practice. This requires easy access to timely information which can be achieved by using currently available technology (Gardner, 2011; Tran, 2010).

The use of handheld technology, the personal digital assistant (PDA), has the potential to assist nurses in providing safe, effective, and quality patient care. The PDA, a small, portable, easy-to-use device, is capable of storing enormous amounts of constantly updated information. Reference materials can be quickly and easily accessed, data can be organized, and e-mail and Internet communication can be accomplished (Armour, 2004; Peterson, 2003; Thompson, 2005). Additionally, having information readily available helps novice nurses and students gain confidence and reinforce core knowledge (White et al., 2005). PDAs can be used for a variety of purposes: drug information, normal laboratory values, calculations, bedside data entry, and data for research and teaching (White et al., 2005). Easy and timely access to this type of information can help to reduce the number of medical errors and improve the quality of patient care (Shanty, 2008). Clearly, to meet the differing needs of various segments of the student population, the inclusion of portable technology in education is vital.

DISCUSSION

Portable technology is revolutionizing the ELL education and healthcare education arenas. Google Translate, iLearnChineseLite, and TeacherKit are iPad apps (or applications) that allow users to practice speaking and writing Mandarin Chinese and organize their busy schedules (Amax Technologies (Guangzhou) Co., Ltd., 2011; Google, 2011; TeacherKit, 2012). Medscape Mobile, a drug and disease database app

for the iPad, and Visible Body, a three-dimensional anatomy-modeling iPad app, are available to aid medical students in mastering this medical material (Argosy Publishing, Inc., 2011; WebMD, 2010).

It should be noted that these apps are either free or relatively inexpensive. Therefore, teachers need not worry about prohibitive costs when considering supplementing their classrooms with iPad apps. Also, these apps (and others like them) come with online help, tutorials, and other tips and hints that enable first-time users (whether teachers or learners) to quickly learn how to use them to maximize their teaching or learning. Therefore, with decreased cost and increased support comes the increased potential for powerful teaching with portable technology.

CONCLUSIONS

Mobile learning, or m-learning, is the practice of employing portable technology in education. In addition to the work of other educators and researchers, we believe the TPACK model provides a proper rationale for technological inclusion in the modern classroom. There are many viable applications (or apps) on the market that can enhance education. Google Translate, iLearnChineseLite, and TeacherKit are just a few apps that can help English as a Second Language learners. And Medscape Mobile and Visible Body are examples of apps designed to aid medical students to master medical material. Regardless of the subject area or student age range, as the saying goes, "There's an app for that!"

TAKE AWAY MESSAGES

Clearly, m-learning, or employing portable technology in education, as emphasized by the TPACK model and ISTE and PDE standards, is becoming increasingly important in modern education. The use of iPads in classrooms can enhance many school subject areas and many student age levels. English as a Second Language learners can benefit immensely from such iPad applications (or apps) as Google Translate, iLearnChineseLite, and TeacherKit. Medical students can be helped by iPad apps like Medscape Mobile and Visible Body. Regardless of an educator's area of expertise, all educators should seriously consider the powerful impact that portable technology could bring to their teaching.

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