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# Classroom Strategies for Overworked Faculty of Intro to MIS: Harnessing the Power of Cooperative Learning

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*Completed Research*

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## Abstract

Many issues complicate the successful academic's workload, such as declining MIS major enrollments, increased responsibilities, higher publication standards, online teaching, larger class sizes, reduced state funding, and more. On top of this, faculty have a broad selection of teaching methods to learn and choose from with little practical guidance from research or formal doctoral training. In this paper, we present a brief background of some of these methods and then provide simple, easy to implement suggested activities that can be used to increase student interest, engagement, and potentially retention. These activities do not require flipping the classroom or intense training, meaning that busy, overworked faculty could read this article and implement these ideas tomorrow. This paper contributes to research on how to improve the Intro to MIS course through cooperative learning exercises without excessively adding to faculty's workload. It should especially interest newer faculty looking to supplement traditional lectures in the Intro to MIS course.

### Keywords

Introduction to MIS, active learning, cooperative model of learning, student engagement

## Introduction

Several papers on improving the core Intro to MIS course published in recent years have attempted to address the decline in MIS major enrollments since 2001 (Chen & Holsapple, 2014; Firth, Lawrence, & Looney, 2008; Koch & Trower, 2011). Some suggest ways for faculty to increase student engagement and material mastery by applying instructional techniques from other disciplines. These run the gamut of acronyms from Active Learning to Flipped Learning, Just-In-Time Teaching, Process Oriented Guided Inquiry Learning (POGIL), Team-Based Learning (TBL) and more. Clearly, faculty have a broad range of approaches to choose from and can tailor their teaching to meet their students' needs. But with such a diversity of tools at their disposal, newer faculty involved with the Intro to MIS course face substantial uncertainty as to which approach is most appropriate for their institution's student population, enrollments, and teaching team. Further, the resources and time required to fully and properly implement these strategies can be hard to justify without first experiencing an acute crisis (e.g., a large drop in major enrollments, low student evaluations, etc.). Even without a looming crisis, external factors require evaluation and innovation in curriculum, teaching methods, and technologies, such as the pace of technological change, the importance of the Introduction to MIS course in recruiting future IS majors and the course's place in supporting AACSB guidelines.

Firth, Lawrence & Looney (2008) designed a 12-step program to increase MIS enrollment by focusing efforts on the Intro course. Schools that have adopted this program have seen increased enrollments and include Firth's own school, University of Montana, and the University of Limerick's program, which rebounded from an "unviable" designation it received when enrollment dropped to 12 (Whelan & Firth, 2012). We wholeheartedly agree with Firth et al.'s suggestions, but do not aspire to their comprehensive scope. Instead, we provide specific examples of exercises for the Intro to MIS course that are in keeping

with Firth et al.'s 12-step program, especially Steps 2, 4, 5, and 8-12[1]. We consider Step 2 to be by far the most important: "Teach IS, not IT or CS." By teaching IS, particularly from an IT alignment standpoint, the Intro to MIS course fulfills its role as a core business course, similar to Strategic Management (a course most students complete their senior year). This spirit is important because most business today involves some form of information system. Even students who do not choose the MIS major know they cannot avoid IT altogether, giving IS educators an opportunity to expose them to a broader conception of IS and its uses beyond hardware and software. Meeting students where they are increases engagement.

This paper reports on a proven framework to improve lectures, increase engagement, and design in-class activities without burdening overworked faculty with flipping the classroom or adhering to strict and complicated methodologies that take weeks (or months) to learn, plan and create. Inspired by Firth, et al. (2008)'s 12-step program to improve the Intro to MIS course, this paper contributes to research on how to make this vital course more interesting for students of all majors, without radical course re-designs and overhauls that take months to plan. We adopt the perspective that the target audience for the Intro to MIS course is not only would-be MIS majors (though we want to keep the course interesting for this population). Rather, this course is intended to serve all business majors (which is also consistent with AACSB guidelines). We present activities that offer students familiar yet engaging ways to learn material more deeply, thus achieving higher levels of Bloom's taxonomy. At their essence, these activities leverage students' preexisting knowledge of everyday concepts and relate them to course material. This guiding principle especially motivates freshmen level and first-year students who may already be feeling overwhelmed by a technology course. This model of learning is based on the model of cooperative learning (Leidner 1995), where "learning emerges through interaction with others" (Leidner & Jarvenpaa 1995, p. 268, citing Slavin (1990)).

## *Cooperative Learning in a Connected Environment*

The twin concepts of cooperative learning and collaborative learning are well documented in education research but less often applied to MIS (Cohen, Brody, & Sapon-Shevin, 2012; Jolliffe, 2007; Sharratt & Planche, 2016; Slavin, 1991). While the differences between these are beyond the scope of this paper, we apply the spirit of their commonalities: their "focus on peer interaction and promotion of social skills in a group setting" (Clare, 2015). In cooperative learning, "students work in small groups or teams to help one another learn academic material. It usually supplements the teacher's instruction by giving students an opportunity to discuss information or practice skills originally presented by the teacher; sometimes cooperative methods require students to find or discover information on their own" (Slavin, 1991, pp. 71–72). For a constantly shifting field such as MIS, cooperative learning increases the likelihood students learn fresh examples, because students have to find them on their own. "Learning occurs as individuals exercise, verify, solidify and improve their mental models through discussion and information sharing" with the "implicit goal [of] improving communication and listening skills and eliciting participation" (Leidner & Jarvenpaa, 1995, p. 268). Cooperative learning improves skills students need to succeed in their careers. Employers still demand that graduates can communicate, listen and solve problems (Osmani et al., 2016; Selingo, 2015).

Further, a single course or even a college degree cannot prepare students for the myriad of future jobs that don't exist yet. Rather than memorizing facts, students should be prepared to connect ideas and build nomological networks that will serve them well in any business career. The connectivist framework states that "learning takes place when learners make connections between ideas located throughout their personal learning networks" (Dunaway 2011, p. 676). One way to make connections is to interact with other people to learn. In fact, students prefer information they receive from other people (Weiler, 2005) – anyone following news on social media will see the problems with this habit. Ease of use is cited as the main reason to choose information from peers. Therefore, based on these learning theories, we attempted to harness

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[1] The 12 steps from Firth, et al. (2008) are: (1) Assign the most effective teachers. **(2) Teach IS, not IT or CS.** (3) Use writings from non-IS authors to tell the IS story. **(4) Force the students to write and write and write. (5) Expose the students to innovative and interesting technology.** (6) Recruit peers and alumni as guest speakers. (7) Expose students to career and internship counseling. **(8) Provide sufficient levels of assistance to students. (9) Provide opportunities for reflective growth. (10) Identify and market to the top students. (11) Be nimble. (12) Focus on local strengths.**

students' general tendencies by asking them to proffer personal knowledge on course topics. As an added bonus, students enrich class discussions with a wide variety of personally-meaningful examples.

### *POGIL, TBL, "Flipping" and Other Structured Teaching Methods*

POGIL and TBL are other examples of structured teaching methods that can require weeks of specialized training and study for instructors and support staff to learn and evaluate properly (Trevathan, Gray, & Myers, 2014). These highly structured systems have been shown to produce results, including reduced absenteeism and increased student performance in marketing students (Hale & Mullen, 2009) and increased feelings of mastery in computer science students (Kussmaul, 2012). However, this performance relies on consistent structure and adequate support for the class size, and it comes at varying costs to faculty's time. For disciplines outside of science that might be new to adopting POGIL, faculty should expect unfamiliarity on the part of the students and support staff (Trevathan et al., 2014), plan on investing "significant time and effort" to develop POGIL activities, and potential difficulty adopting or adapting materials when portions of the course content change rapidly (Kussmaul, 2012). In MIS specifically, Chen & Holsapple (2014) presented slightly-less prescriptive framework (in the sense that it does not specify student roles and duties), in which they call for the Intro to MIS course to be "innovative, interesting, interactive, integrative, and influential, and more." They present an applied case in which they contextualized these concepts by training students to design and build an ecommerce site. This effectively demonstrates their framework for the Intro to MIS course, but still leaves a significant amount of work for MIS faculty to develop lessons that meet this multi-faceted objective.

"Flipping" the classroom using already-mentioned structures or other approaches for in-class teamwork is advocated on many university campuses. In this well-known model, instructors devote dozens (to hundreds) of hours preparing pre-recorded course lectures and online materials for students to review, and then spend class meeting times on group work where students solve exercises that reiterate and cement the covered material, with the instructor present to answer questions that teammates cannot answer. While there are many success stories, evidence has also shown that even after the significant upfront investment in developing materials and structuring in-class interactions, student learning outcomes may not be substantially different from more traditional formats (Lape et al., 2014). This may be because not every subject is amenable to flipping, putting further strain on faculty attempting to evaluate the necessary investment to flip an entire semester. The flipped classroom model emphasizes online lectures and expects students to read material and watch lectures before coming to class (not always feasible for busy students). Students are expected to prepare well before class, and then come to class to solve problems and apply knowledge. This model potentially falls apart when students don't adequately prepare, or worse, don't know how to prepare. Even with highly motivated students in an intro to MIS class, however, the breadth of material poses a problem. How can students know how to adequately prepare when (as they believe) there is far too much knowledge to cram in their heads? Perhaps a more productive approach would be to teach students how to seek information independently and how to make connections across modules and courses, as suggested by connectivism.

Today's busy faculty may not have time, energy or resources to implement structured methodologies, especially early in their careers, struggling as they do with launching their research programs. Even if they are fortunate enough to identify a strategy that might work well in their course (if only they had the time to properly implement it), many must choose between driving forward a research agenda and improving already "good-enough" (i.e., "not bad") teaching. While few tenure committees will question junior faculty time spent on good research, time spent on good teaching may be questioned by advisors, department chairs, and others as "gilding the lily" or worse, "a waste of time."

In an effort to maximize returns while minimizing time spent, we share easily implemented activities (described below) that can be put in place with minimal preparation as "plug-n-play" teaching strategies and activities. Anyone can implement the nifty activities we describe below at a moment's notice. For example, simply breaking up a lecture with short discussions or briefly requesting that students research a topic and share examples from their experience can make a lasting impact. It is especially important to showcase what students already know and explain how this information relates to the material. This technique extends students' burgeoning mental models by scaffolding existing knowledge with new concepts. The described exercises work well in small or large classrooms. Most importantly, this framework

does not require extensive training or prep time, freeing up busy overworked faculty for other important tasks.

### *Challenges to Teaching the Intro to MIS Course*

An additional difficulty in teaching the Intro to MIS course is that it typically contains freshmen and sophomores rather than juniors and seniors. These new-to-college (or new-to-the-business-school) students require more time to adapt and are at greater risk of dropping out of the curriculum. Therefore, they benefit from greater support and engagement. Studies show that engagement with school and with peers in school increases the likelihood that students will persist to graduation (Erickson, Peters, & Strommer, 2006). Increased student-faculty interaction leads to greater student engagement and "active and collaborative learning activities" make students feel more "challenged and engaged" (Umbach & Wawrzynski 2005, p. 163). Further, class discussions and higher order thinking activities (also recommended by Bloom's taxonomy) can result in greater social integration (Braxton, Milem, & Sullivan, 2000), and social integration can lead to higher graduation rates.

We know that collaborative group work increases students' interest in material as opposed to working alone (Leidner & Fuller, 1997). Therefore, our recommended activities encourage them to work together. Another major problem with teaching Intro to MIS is that the content changes rapidly. Often, examples in MIS textbooks are out of date well before they go to print, yet their comprehensive approach is necessary to avoid gaps in coverage. At times, students can seem more in-tune with new technology than faculty, while simultaneously being oblivious to entire categories of enterprise systems! For example, students are well versed in consumer technologies such as Snapchat ("Snap") and will be cognizant of whatever replaces it, yet do not know how that and other social platforms cater to and support brands, both major and local. Given the generalist nature of the intro to MIS course, faculty rarely have deep expertise in more than one or two classes of systems presented, raising the question "How can faculty teach students about technologies they barely understand themselves?" One approach is to ask students what they already know, teach them to fill in the gaps, and then teach their peers. Some faculty may argue that it's impossible (or self-defeating) to train students how to use more than one or two individual technologies, and that classroom time should rather be spent teaching fundamental theories that do not change much over time or change very little (e.g., Porter's five forces has not changed substantially since it was published in 1979). But theories often fall flat without practical examples of their application and students quickly lose interest in facts with no basis of comparison in their reality.

## Nifty Suggestions for Teaching Intro to MIS

Here we present class activities utilized in an Intro to MIS course at a midsized public university on the East Coast to enhance instruction and increase student engagement. These activities were piloted in the fall 2017 semester, then revised and enhanced for the spring 2018 semester. At the time of writing, the course is currently underway and data will be collected from students as part of their evaluation of the course. In the fall semester, an experienced outside observer who interviewed the students partway through the semester found a higher than normal group mentality among them. Students knew each other's names, they studied together, and they helped one another. For example, during the focus group with the observer, one speaker interrupted another, and the class was quick to jump on and ask the interrupted party to finish their thought before moving to the next. Even after the semester ended, students from the course continue to interact with the instructor and express fond memories of the course – even those who are not MIS majors.

This course is taught with the textbook *Using MIS* by (Kroenke & Boyle, 2017), 10th edition. The presented activities may be taught in any order but are here organized by the chapters in *Using MIS* for simplicity. They may be adapted, improved or modified to fit other textbooks or teaching styles.

The first concept is to use activities to break up long lectures into 10-15 minute "soundbites". Although it has been suggested that students' attention spans grow shorter every year, evidence suggests this is not necessarily the case (Maybin, 2017). "Soundbites" aid faculty in capturing and keeping students' attention in a distraction-rich environment full of other cognitive demands (e.g. other classes, email, family, social media). If students can obviate the need for the class meeting simply by reading the book, then they are likely to either skip the lectures and read the book or download the slides and neither buy nor read the book. This is a lose-lose situation for everyone, because the class loses the benefit of engaging with and motivating

that student or the student misses important content that they were expected to learn. To help students prepare for class, they are provided with detailed reading guides for each chapter. These are available upon request to supplement these methods.

In between the mini-lecture "soundbites," an attention-resetting activity is used to allow students to synthesize and enhance the lecture material. A sample of specific in-class activities are given in the attached Appendix. Due to space requirements, we only provide the first fourteen activities. In general, activities are implemented in groups that are set or flexible, as needed. For set groups, students are manually or randomly assigned to groups of 3-5 students from the first week of class. In larger classes (more than 30 or so students), larger groups of 5-7 work better, because if any one team member misses class, the group still has plenty of expertise available. In a typical 75-minute class (representative schedule shown in Table 1), mini-lectures are interspersed with hands-on activities, group discussions, and think-pair-shares. Students may choose to work with their set of assigned group members during these activities or with "the people sitting next to you." While students are working, faculty have a few minutes to walk around and interact with students on a more personal basis, to check that groups are in fact still working on the activity, and to answer questions to clarify the assignment or the material. Often, these checks help students quickly identify gaps in their understanding and practice material, well before the test comes around. An especially useful strategy for first-year students is to remind them to write down their examples so that when they're called on, they have a ready answer to refer to.

Finally, a 5-minute multiple choice reading quiz can be given at the beginning of every class to encourage attendance. To reduce the burden on grading these, individual quizzes can be taken electronically on a platform of the instructor's choice. Our current preference is Socrative. Group quizzes are given on paper, to encourage groups to talk about the answers as a team. To further reduce the burden on faculty, these activities are not graded directly. Students are free to participate or not, at their discretion. Rather than grade participation (a subjective measure), assessment questions are added to the exam that directly apply skills learned from the activities. The activities are designed to inure students to applying their existing knowledge to course material. They look for and apply examples from their experience to the daily lessons. In this way, they become more adept at applying MIS theories to the business world around them. By working together in pairs or small teams, they overcome shyness about talking in class or looking stupid in front of everyone and they develop collaboration and communication skills.

| Time required | Task |
|---|---|
| 5 min | Brief reading quiz administered individually on first day of material and as a group on second day of material |
| 10-15 min | Introduce day's material and present about 1/3 of lecture |
| 5-10 min | Activity related to the material |
| 10-15 min | Present next 1/3 of lecture |
| 5-10 min | Activity related to the material |
| 10-15 min | Present last 1/3 of lecture |
| 5-10 min | Activity related to the material |
| 5 min | Homework reminders, answer questions, allow students time to get to next class, flex time in case lecture and activities run over |
| 75 min | Total time |

**Table 1. Typical 75-minute class schedule[2]**

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[2] This schedule could be easily adapted to a 50-minute class as well.

It should be noted that this university has not experienced declining IS enrollments; in fact, it is one of the fastest growing majors in the College of Business. In Fall 2017, one section of 26 students completed the course. In Spring 2018, three sections of students with up to 45 students each are enrolled in the course (total n=133). We intend to scale these activities to larger classes, which is facilitated by the characteristic that they do not require faculty to directly interact with every student. Rather, faculty hand pick or cold call a few students to share their examples and then move on to the next topic. Although a large classroom with hundreds of students may become noisy during student interactions, students are able to tune out most of the noise and engage with their neighbors. For more information on creating classroom discussions in large classes, see (Erickson et al., 2006), Chapter 14 on "Teaching Large Classes."

## *Preliminary Results*

After one semester, student evaluations were fairly positive. Except for standardized student evaluations (excerpts provided below in Table 2) and an outside observer session, no other data was collected on the course. Future research includes formally evaluating the effects of these activities on student learning outcomes. However, informally, students report that they like coming to class.

| *What did you like best about this course?* |
| --- |
| The application between course material and real life scenarios. |
| I enjoyed the group work the most through this course. |
| Very interesting and engaging. |
| I believe the course material is most relevant to our generation. |
| I enjoyed the collaboration. |
| The real life examples to help understand the material. |
| I really enjoyed this course when going into it I thought I wouldn't like it. |

**Table 2. Select Student Evaluations, Fall 2017 Intro to MIS course**

# Conclusion

This paper contributes to research on how to increase engagement of students in the intro to MIS course, particularly when students are required to take the course and may be less than enthused about it because they have not chosen the MIS major. Students often question why they have to take a course that seems so unrelated to their major. But the activities here help students make the connection between their preferred major and the importance of MIS, something which seems obvious to MIS faculty but which may be lacking in students' perspectives. This paper further contributes to research on how to improve student engagement in the intro to MIS course at the freshman and sophomore level without overburdening faculty with complicated pedagogical methods that demand intensive preparation and may or may not yield the desired results. Although many newer faculty are tempted to make changes to courses and include all the bells and whistles at once, we argue that even moderate changes can reap major benefits. Students don't necessarily need a flipped class but they do need an instructor who engages them in learning. This paper provided a modest number of concrete, tried and true activities to encourage students to engage with the material without overburdening them with excessive reading and preparation. As educators, we want to encourage our students to connect what they know with what they're learning, for isn't that the whole point of college?

These exercises are non-technical yet challenging, which helps to build students' self-efficacy, as recommended by (Koch & Trower, 2011). Further, these activities are "challenging yet possible for students to master and help demonstrate what the field is really about (well beyond Microsoft Office literacy); and created opportunities to encourage students to explore the IS major" (Koch & Trower 2011, p. 7). Like all great teaching, this is a work in progress and we plan to adjust and refine these activities in the Intro to MIS class over time. Additionally, plans exist to introduce them in a junior level intro course at a second institution to compare results. Until then, however, we offer these to our colleagues (especially those with little spare capacity for teaching prep) for scrutiny and feedback, and possibly adoption when useful.

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# Appendix

| Chapter | Topic | Instructions to Students for In-class Exercises |
|---------|-------|------------------------------------------------|
| 1 | Introduction, What is MIS good for? | • Draw a figure to explain what MIS means<br><br>• Draw the DIKW framework and create an example of data, information, knowledge and wisdom<br><br>• Pick a company and explain how each tech law affects how they do business<br><br>• Search for jobs that interest you related to MIS. Compare your results with a partner. |
| 2 | Collaboration | • (Part 1) Write 1-2 sentences defining collaboration in your own words. Think of a time when you had a good experience collaborating. What made it work well?<br><br>• (Part 2) Review your definition and your previous experience (from Part 1). Was it collaboration or cooperation? Why?<br><br>• Create a timeline of Top 10 IT developments you've witnessed in your lifetime and the year they became mainstream. Example, in 2007 Apple released the touchscreen iPhone.<br><br>• Discuss how you keep up with the newest tech. How can business professionals keep their skills updated?<br><br>• Create a list of decisions you might need to make as a business professional in your chosen major. Identify one structured and one unstructured decision. |
| 3 | IS strategy | • Think about a company you like. Identify their main business strategy and what they're well known for.<br><br>• Apply Porter's five forces to Wal-Mart.<br><br>• Draw the 2x2 table of Porter's competitive strategies. Identify a company for each cell in the table.<br><br>• Next, pick one of the 4 companies identified above and based on their competitive strategy, think about how they use IT differently from competitors.<br><br>• Search LinkedIn for school alumni who work as a business analyst. What do they do? Where do they work? |

**Sample Activities in Intro to MIS, Based on *Using MIS* by Kroenke & Boyle, 10th ed.**