ӘЛ-ФАРАБИ атындағы ҚАЗАҚ ҰЛТТЫҚ УНИВЕРСИТЕТІ
КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ имени АЛЬ-ФАРАБИ

МАТЕРИАЛЫ
научно-методической конференции
«НАУЧНО-МЕТОДИЧЕСКИЕ АСПЕКТЫ ПРЕПОДАВАНИЯ ХИМИЧЕСКИХ ДИСЦИПЛИН:
ОПЫТ, ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ»
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настоятельно рекомендует и требует на законодательном уровне от руководств иностранных, совместных и отечественных предприятий активно принимать на работу казахстанских выпускников ВУЗов и специалистов. Конечно, многие компаний подают заявки и объявления на вакантные места о приеме на работу. Но, к сожалению, очень часто ссылаясь на низки уровень неподготовленности местных кадров к работе с современными приборами и технологическими оборудованиями отказываются принимать их на работу, так как такое положение дел требует дополнительной организации курсов подготовки и переподготовки казахстанских кадров. Таким образом, получается, что руководство казахстанских и иностранных компаний готовы и заинтересованы принять на работу кадров, подготовленные на базе местных учебных заведений и выполнять условия выдвинутое правительством, но существует ряд проблем для взаимовыгодного сотрудничества.

Для эффективного решения данной проблемы мы предлагаем создать *Центр коллективного пользования технологическими оборудованиями и приборами КазНУ им. аль-Фараби (ЦКПТОП КазНУ),* т.е. своего рода Инновационный производственный центр КазНУ им. аль-Фараби (Инновационная мастерская КазНУ им. аль-Фараби «FabLab KazNU»).

Данный Центр может быть создан на основе партнерства крупных казахстанских, совместных и/или иностранных промышленных предприятий и высших учебных заведений при содействии Министерства образования и науки РК и Министерства по инвестиции и развития РК.

В настоящее время технологические оборудования и приборы многих казахстанских, совместных и иностранных предприятий обновляются на современные их прототипы. Принципы действия технологий и приборов, заложенные в них, сохраняются как на новых, так и на классических приборах. Поэтому, на основе договоров о сотрудничестве руководствам этих предприятий представляется возможным передать старые версий обновляемого оборудования и приборов в Центры коллективного пользования технологическими оборудованиями и приборами университетов.

Создание ЦКПТОП КазНУ позволит решать следующие задачи:

- рациональное и эффективное расходование государственных средств МОН РК выделяемое для укрепления материально-технической базы ВУЗовской системы страны;
- практическая реализация в стенах университета хоздоговорных заказов реально хозяйствующих субъектов индустриального сектора экономики страны на проведение определенных научно-исследовательских работ представляющих практический интерес компаний (это «новый качественный уровень интеграции образования и науки»);
- апробация, испытания и получение опытно-промышленных образцов разработок ученых и студентов университета, что позволит создать «start-up» компаний;
- бизнес-инкубирование и конвертация результатов НИОКР в реальный сектор экономики страны.

В итоге, все стороны участники данного интегрированного взаимодействия тем самым вносят практический вклад в дело дальнейшее развитие инновационной экономики Казахстана, и при этом смогут реально реализовать себя и достичь корпоративной цели своих организации.

Резюмируя, хотим отметить, что высокий интеллектуальный потенциал и накопленный многолетний опыт научно-образовательных кадров КазНУ им. аль-Фараби создает мощную предпосылку для успешной реализации данного проекта.

Dauletbay A.

HOW TO MOTIVATE STUDENTS

There are essentially two types of motivation: intrinsic and extrinsic. When we lament that some students aren't motivated to do the coursework, we mean they're not intrinsically motivated to learn. They don't want it on their own, for themselves. Perhaps they could benefit from an extra incentive, or extrinsic motivator?

In desperation, I once promised students a pizza party if they attended class regularly. Pizza is not inherently associated with being cooperative. Hold open a door for someone and an extra-large deluxe is not going to fall from the sky. Tie performance to a reward, and you're likely to see improved behaviour.

Ideally, though, I want students to be intrinsically motivated to study. Why? Because when people are intrinsically motivated to do something, they will begin it on their own, keep on doing it on their own, and furthermore do it better. For a number of reasons—not the least of which is the cost of pizza—it's better for society and for individuals when people participate freely of their own accord, when they take the initiative to hold the doors open for each other.

The idea is that extrinsic motivators stand as temporary but useful scaffolding during periods of training. Internal rewards will at some point replace the external ones. The maturing student will acquire good study habits, professionalism, a work ethic, a love of learning, and what is called "self-efficacy."

Technology as a Motivator

Practically speaking, the question is not whether to use tech in your classroom, but which tech, and how. It's helpful, perhaps, to think of computer and digital technologies as a part a long history of ed tech—after all, a pen is itself a technology. It's how each tool is used that matters when considering student engagement. As you experiment–ahem–innovate, here are five guidelines to consider.

1. Wherever possible, offer options.

Despite bandwagon marketing, it's not surprising that different students are motivated by different tech. Or not motivated. For instance, if a student hasn't had the opportunity to play video games at home, she may not be interested or even comfortable with learning via game play. On the other hand, she may be overjoyed to finally get her fingers on the controller. People are complicated; people have different learning styles and habits.

The point is, you can't assume in advance which tech will turn students on to learning. In fact, your students may well not take the same joy as you do in wikis. Digital natives may be *familiar* with new technologies, but that doesn't necessarily translate to being inspired by them. When a tech is forced on students, especially teens, it can create motivational difficulties. So, wherever possible, offer tech options.

2. Reinforce competency instead of competition.

While some people are highly competitive, everybody loves to achieve goals. Performance-based climates can be alienating, nerve-wracking, and induce conflict and anxieties. Where there are winners, by definition there are losers. I've spoken with too many college students who tell me they are incapable of writing an assignment, for example, before they've even tried. It's as if they think the world is divided into two kinds of people, those who are "good at school" and those who aren't.

Confidence, by contrast, is a vital motivator. Technologies that guide and support students while they are learning can build discipline and a sense of self worth that will benefit everyone. For example, I have used the Test, Surveys and Pools tool in Blackboard to offer Critical Thinking students the opportunity to answer practice a variety questions, even multiple times. Practicing with actual arguments is the best way to learn how to analyze and categorize types of claims.

3. Use fun tech to invigorate your teaching and their learning.

If a teacher isn't enthusiastic about their subject, how can they expect their students to be? Sabbaticals, summer holidays, personal days, and irrelevant field trips to Stratford are all built upon this principle. If you're feeling stale, consider whether technology can add a little joy to your classroom. Conversely, if a teaching tool is getting you down, make changes.

Likewise, if the use of a tech, even something as simple as a video clip, makes an aspect of your course more fun for your students they will be more likely to pay attention, to participate, and to remember the course content associated with positive experiences.

4. Help students help themselves.

If you want students to engage in and take ownership in their education, it only makes sense you'll want to choose tech that nurtures rather than diminishes their agency. If you find that a tech tool is causing students to become over-reliant on you, confused, or alienated from their own efforts, consider rejigging how you use it.

An example. At my college we use a screening software called SafeAssign by Blackboard that helps to help detect whether student essays have plagiarized content. Students are not motivated to care about plagiarism, or even to understand what it is, simply by clicking an icon and uploading a file. However by making students responsible for analyzing their own SafeAssign reports and attaching them to the essays they submit, you not only give students practice discerning what counts as plagiarism and what counts as proper citation, you also put the responsibility for handing in a "clean" essay on the student, not the software.

5. Use social media with student consent.

Are you surprised to hear that some students prefer *not* to use Facebook, Twitter, Instagram and other social media for educational purposes? Research in the U.K. (Wilkinson and Lancaster 2014) and the U.S.A. (Dahlstrom, Walker and Dziuban 2013) reveals that, overwhelmingly, students want to keep their social life separate from their scholarly life. I felt a similar 'ugh' factor if any of my professors showed up at the bar where my friends and I played pool, so it's not so hard to believe.

The majority of students would rather have a class discussion in class, not in a chatroom. When I have given students the option, even the quieter students vote for in-person, live interaction. This is not to say

there is no place for online discussions, just that you should think twice about considering them an effective incentive for reluctant learners.

How to Motivate Students with Classroom Technology

The above guidelines suggest ways of using digital technology that align motivation with learning and with increased self-efficacy. Just like pizza, when it functions as an extrinsic incentive, tech should make itself redundant once the student develops enough intrinsic motivation to know or accomplish the subject matter. After all, the purpose of introducing technologies into the classroom is not to make students' reliant on them, but rather enabled and inspired to achieve on their own.

What experiences have you had implementing classroom technology to motivate reluctant learners?

Dauletbay A.

CHECK FOR STUDENT UNDERSTANDING

The ultimate goal of teaching is to do just that – teach, not stand up in the front of the room and talk. But sometimes it's easier to talk than to teach, as we all know, especially when we need to cover a lot of material in a short amount of time. We hope students will understand, if not now then before test time, and we keep our fingers crossed that their results will indicate we've done our job.

The problem is, we rely on these tests to measure understanding, and then we move on. Few of us take the time to address weaknesses and misunderstandings after the tests have been graded, and by that time it's too late for students to be interested. This means we need to rethink how we approach assessment during class.

The most effective way to test student understanding is to do it while the lesson's still going on. Asking students to fill out a questionnaire and then correcting misunderstandings during the next class period won't work because students have already moved on. You've got to take advantage of the moment. If you hope to spend the majority of your time getting through to students, and not just talking, then understanding must be measured and dealt with as soon as the first frown appears on a face.

Here are a few in-class tips to get you started:

1. Avoid Yes/No questions.

Avoid yes/no questions and phrases like "Does this make sense?" In response to these questions, students usually answer "yes". So of course it's surprising when several students later admit that they're lost. To help students grasp ideas in class, ask pointed questions that require students to use their own prior knowledge.

2. Ask students to reflect.

During the last five minutes of class ask students to reflect on the lesson and write down what they've learned. Then, ask them to consider how they would apply this concept or skill in a practical setting.

3. Use quizzes.

Give a short quiz at the end of class to check for comprehension.

4. Ask students to summarize.

Have students summarize or paraphrase important concepts and lessons. This can be done orally, visually, or otherwise.

5. Hand signals.

Hand signals can be used to rate or indicate students' understanding of content. Students can show anywhere from five fingers to signal maximum understanding to one finger to signal minimal understanding. This strategy requires engagement by all students and allows the teacher to check for understanding within a large group.

6. Response cards.

Index cards, signs, whiteboards, magnetic boards, or other items are simultaneously held up by all students in class to indicate their response to a question or problem presented by the teacher. Using response devices, the teacher can easily note the responses of individual students while teaching the whole group.

7. Four corners.

A quick and easy snapshot of student understanding, Four Corners provides an opportunity for student movement while permitting the teacher to monitor and assess understanding. The teacher poses a question or makes a statement. Students then move to the appropriate corner of the classroom to indicate their response to the prompt. For example, the corner choices might include "I strongly agree," "I strongly disagree," "I agree somewhat," and "I'm not sure."