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Flipped Classrooms: An Introduction for Coaching Candidates in Higher Education

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ABSTRACT

Former UCLA Bruins head basketball coach and 10-time national champion John Wooden is arguably the most revered coach in any sport and in any time. Yet, in his own words, he suggested “I’m no wizard, I am a teacher” (Gallimore, 2006, np), and that he learned to coach by applying what he learned as a high school English teacher (Gallimore, 2006). Similarly, Côté and Gilbert’s (2009) conceptual model of coaching identifies categories of knowledge coaches need, including professional knowledge as “declarative knowledge in the sport sciences, sport-specific knowledge, and pedagogical knowledge with accompanying procedural knowledge” (p. 310). Thus, inspired by Coach Wooden, and following Côté and Gilbert (2009), the purpose of this workshop is to enhance coaches’ pedagogical knowledge by introducing coaching candidates at post-secondary institutions to the flipped classroom (FC) approach. In higher education, FCs have been shown to improve student engagement, motivation, satisfaction, and creativity (Al-Zahrani, 2015; Chen, Lui, & Martinelli, 2017; Herreid & Schiller, 2013; Rotellar & Cain, 2016) – outcomes that may be especially important to coaches. Participants in this workshop will learn about FCs in an interactive 90-minute session, collaborating with peers to address issues that are relevant to their teams, and incorporating FC principles to improve their teaching and enhance student-athlete satisfaction.

KEYWORDS

flipped classroom; coach education; teaching and learning

LEARNING OUTCOMES

By the end of this workshop, participants will be able to:

- Compare their own teaching methods to the flipped classroom approach.
- Identify aspects of the flipped classroom approach that can benefit their team.
- Create an implementation plan for one flipped classroom with their team.

ANNOTATED BIBLIOGRAPHY

Chen, F., Lui, A. M., & Martinelli, S. M. (2017). A systematic review of the effectiveness of flipped classrooms in medical education. *Medical Education*, 51, 585-597.

<https://doi.org/10.1111/medu.13272>

The authors analyzed 46 articles in medical education to uncover their scope, their quality, and the effects from using flipped classroom techniques. From the 46 articles, they found 13 commentaries, nine controlled studies, eight action research studies, eight post-course design studies, two before and after studies, and two literature reviews. Of the nine controlled studies, four used a controlled before and after design that examined both the treatment (flipped classrooms) and the control group (traditional lectures) before and after the intervention. Regarding FC effects, “students were generally satisfied with the approach...students were also satisfied with the in-class quizzes and homework problem solving practices that reinforced the in-class sessions” (p. 590). FC students also reported increased enjoyment and decreased boredom compared to students in traditional lectures. Notably, however, with respect to knowledge, skills, and behavioural changes, the authors found mixed results. They also noted

challenges for instructors implementing FCs, including compliance from students (i.e., doing the pre-class assignments before the in-class session). Still, Chen et al. suggest FCs are “a promising teaching approach, particularly when the intent is to increase learners’ motivation, task-value, and engagement” (2017, p. 596). In this workshop, this article is referred to in the pre-class video/audio podcast.

Herreid, C. F., & Schiller, N. A. (2013). Case studies and the flipped classroom. *Journal of College Science Teaching*, 42(5), 62-66.

Herreid and Schiller suggest “a central theme in all of this activity is the idea that active learning works best. Telling doesn’t work very well. Doing is the secret” (2013, p. 65). They note several benefits to students and instructors who adopt the FC approach, including students being able to learn at their own pace, instructors using classroom time more effectively and creatively, and reported increases in student achievement, interest, and engagement. Further, they suggest learning (and teaching) in the 21st century should utilize technology, including video podcasts that are content driven or scene setting devices. For example, “a content video would be one showing the structure of the DNA...as a prelude to a forensic case in which DNA is used to solve a crime” (p. 64), and a scene-setting video could be “a short film clip of a prison in Russia beset by multiple drug-resistant TB, setting the scene for a case of antibiotic resistance” (p. 64). According to the authors, there is considerable evidence supporting video podcasts (i.e., the podcast in this workshop), which have been shown to positively impact student attitudes, student behaviour, and student performance. Still, instructors should anticipate challenges to implementing FCs, including students’ resistance to change and the time required to prepare pre-class and in-class activities.

Rotellar, C., & Cain, J. (2016). Research, perspectives, and recommendations on implementing the flipped classroom. *American Journal of Pharmaceutical Education*, 80(2), 1-9.
<https://doi.org/10.5688/ajpe80234>

Rotellar and Cain suggest “rapid advancements in technology have made flipped classrooms possible by making fundamental facts and knowledge available for student review before actual class time” (2016, p. 7). They provide a summary of literature and offer recommendations for instructors who are implementing FCs. For example, Estes, Ingram, and Liu (2014) propose a three-stage flipped classroom design framework consisting of pre-class, in-class, and post-class learning activities, and Kim et al. (2014) identify nine crucial design principles for FCs. According to Rotellar and Cain, pre-class work “should not contain excessive detail, but should cover primary learning points” (2016, p. 2), and in-class activities may include audience responses and open questions, pair-and-share activities, student presentations, quizzes, micro-lectures, team-based learning activities, discussions, the use of student response clickers, and case studies. The authors also identify challenges to implementing FCs, including the time required to develop learning materials and overcoming students’ aversions to new learning methods.

Students who oppose FCs may suggest they are “teaching ourselves” or believe FCs require “extra work”. Yet, “students typically responded favorably to this type of instruction after

experiencing it” (Rotellar & Cain, 2016, p. 3). In one case (McLaughlin et al., 2013), “preferences for the flipped classroom approach increased from 27.3% prior to the course to 84.6% after the course” (Rotellar & Cain, 2016, p. 4). Finally, Rotellar and Cain suggest educators must “move students toward self-directed learning that prepares students for their future” (p. 6), and that may be achieved using flipped classrooms. The article concludes with a Benjamin Franklin quote: “tell me and I forget, teach me and I may remember, involve me and I learn” (p. 6). In this workshop, this article is referred to during the team-based learning activity.

Al-Zahrani, A. M. (2015). From passive to active: The impact of the flipped classroom through social learning platforms on higher education students’ creative thinking. *British Journal of Educational Technology*, 46(6), 1133-1148. <https://doi.org/10.1111/bjet.12353>

Al-Zahrani (2015) investigated the impact of FCs on students’ creativity, and his findings suggest FCs promote creativity and fluency, flexibility, and novelty. According to the author, creativity is a “mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts...and at its most basic level, it refers to the ability to produce work that is novel” (Hargrove & Nietfield, 2014, p. 2, in Al-Zahrani, 2015, p. 1135). Fluency refers to the total number of appropriate solutions relevant to a specific task or problem, and flexibility can be defined as “the ability to go beyond tradition, habits, and the obvious” (p. 1136). Al-Zahrani conducted a quasi-experimental study in which the FC group watched video lectures on YouTube and used in-class discussions, problem solving, and feedback. Students were also assessed using pre-class questions to ensure they understood the foundational concepts before moving on to small group tasks that encouraged interaction, exchange of information, collaboration, and problem solving. Results indicate students from the FC group rated higher in fluency, flexibility, novelty, and total creativity than students who experienced the traditional lectures. According to Al-Zahrani, FC students were also better prepared for subsequent traditional classroom activities (DeGrazia et al., 2012), were more excited, engaged, and satisfied (Butt, 2014), and demonstrated better proficiency when using problem solving techniques (Mason et al., 2013). As well, “one critical advantage of the FC is that it is not limited to certain groups of learners, specific curriculum or a particular content area” (Al-Zahrani, 2015, p. 1134). In this workshop, this article should be referred to during the Flipped Classroom Content and Summary.

WORKSHOP CONTENT AND ORGANIZATION

DURATION (min)	SUBJECT	ACTIVITY	PURPOSE
10	Introduction	<p>Welcome participants to the workshop. Invite them to take a seat wherever they would like. Once the participants are settled, the Facilitator should introduce themselves and provide a brief background regarding their experiences in sport and teaching and learning.</p> <p>Overview the workshop, noting participants will be interacting with their colleagues in small groups and creating new materials that will be shared with participants following the workshop.</p> <ul style="list-style-type: none"> • Provide participants with a workbook (including Handouts A-D). Have pens and pencils ready • Verify email addresses so that in-class work can be distributed to participants following the conclusion of the workshop <p>Review the learning outcomes (LOs). If possible, have the LOs visible throughout the workshop (e.g., on a whiteboard).</p>	Welcome participants and outline the structure of the workshop so they know what to expect.
5	Pre-Assessment	<p>Now that everyone is comfortable, ask participants to reflect on the teaching strategies and techniques they use. Ask participants to draw a typical in-class meeting with their athletes (Handout A).</p> <p>Ask participants to share their drawing with a partner (using a deck of cards to randomize partners). Ask participants to share “what works best for them”, and “why they want to improve teaching and learning on their teams”.</p> <p>Probe: Why is their method used? Is it effective? Is it the most effective method? Is it important to be more</p>	<p>The Facilitator should determine to what extent participants are familiar with teaching and learning strategies. This activity also allows participants who may not be familiar with teaching and learning vocabulary to contribute to the discussion using their personal experiences.</p> <p>This activity (and probing questions) also requires participants to reflect on</p>

		effective? Why?	why they use certain teaching strategies (LO1).
20	Flipped Classroom Content	<p>Following the paired sharing activity (above), introduce the content for the day. Note that there are several evidence- based teaching strategies that may be useful to coaches, and some have (presumably) been shared already. For today, our goal is to explore and apply the flipped classroom approach.</p> <p>Invite participants to download and listen to the “Flipped Classroom for Coaches” podcast. Tell them that in FCs, this material should be available prior to class.</p> <p>Keep track of time and let participants know before resuming.</p>	<p>The podcast format allows the Facilitator to either watch a video to simulate a pre-class FC activity, or to ask participants to listen to the audio version outside the physical class. The 15-minute podcast delivers content regarding FCs participants will draw on for the remainder of the workshop.</p> <p>The audio/video podcasts are available for download upon request to the author.</p>
15	Design Principles	<p>Re-welcome participants to class. Tell them that for the remainder of the workshop we will be modelling a FC. Rather than beginning a traditional lecture, let’s start with a small group brainstorm activity. In small groups (4-5), and regarding the nine principles (Kim et al., 2014), discuss the following:</p> <ul style="list-style-type: none"> • What aspects of the FC approach are you most confident you can implement? • What aspects of the FC approach are you least confident you can implement? <p>Participants can record their responses on Handout B. In a large group conversation, ask participants to share what they are most excited about regarding implementing FCs and identify any barriers that they foresee. Record participant responses (e.g., on a whiteboard)</p>	<p>This is the first opportunity for participants to engage in the model FC. So rather than deliver a traditional lecture on FCs, the brainstorm activity requires that participants think critically about the content they watched or listened to during the pre- class activity and apply the principles to their own unique situations.</p> <p>This activity achieves LO2: Identify aspects of FCs that may benefit their teams. Identifying barriers to</p>

			implementing FCs also sets up our team-based learning (TBL) activity.
30	Team Based Learning	Introduce team-based learning (TBL) using the identified challenges and barriers as a guide for this activity. In small groups (4-5), discuss strategies to overcome each barrier from the previous session referring to Rotellar & Cain (2016). Ask participants to record their strategies and best practices utilized, and hand in their responses to the Facilitator.	Participants are now working collaboratively in the model FC. We have identified perceived strengths and barriers to implementing FCs. With the help of teams, participants are tasked with overcoming those barriers to help each other implement a FC.
30	Flipped Classroom Application	<p>We have introduced the FC and identified strategies to overcome barriers to implementation. It is now time for participants to try planning their own FC.</p> <p>Using Handout C as a guide, instruct participants to work individually to design one FC for their upcoming season (following Estes et al., 2014).</p> <p>After ~15 minutes, ask participants to share their action plan with a colleague. Ask participants to provide feedback to their colleagues regarding great ideas and potential obstacles using Handout D.</p>	<p>This activity ensures abstract conversations and understandings are turned into actionable implementation plans. Participants are asked to work independently with assistance as requested from the Facilitator. Participants also receive peer feedback to ensure their plan is actionable.</p>
10	Summary	<p>Review the most critical aspects of the FC approach (Chen et al., 2017; Rotellar & Cain, 2016).</p> <p>Ask participants to write down a remaining question they have about FCs, and hand them in before leaving.</p> <p>Let participants know they will receive a follow-up email summarizing key lessons from the workshop and some answers to their questions.</p> <p>Thank participants for attending the FCs</p>	<p>The review emphasizes the key take-home points.</p> <p>Providing an opportunity for questions allows the facilitator to follow-up with additional guidance or readings. Let participants know this activity also models a bridge for an imaginary next class, where student questions can</p>

		for coaching candidates workshop!	inform future pre-class activities.
Total Time: 120 minutes			

PRESENTATION STRATEGIES

This workshop introduces coaching candidates to the flipped classroom approach, using a model flipped classroom. Before the workshop, facilitators should ensure they have printed handouts for each participant. Whiteboard space (or flip-chart paper) and dry-erase markers are used throughout the workshop and should be readily available. As well, the audio/video podcast should be pre-loaded onto multiple devices to avoid technical problems during the workshop. Where possible, arrange the classroom desks to facilitate brainstorming activities and small group discussions, and provide nametags to participants to promote friendly interactions among groups. Available (appropriate) space should guide the total number of participants allowed at the workshop. However, in general, 12 is the recommended minimum number of participants, and 30 is the recommended maximum.

During the workshop, participants share their experiences and teaching strategies used as part of the Introduction and Pre-Assessment, followed by the modelled pre-class activity (video/audio podcast available upon request to the author). Following the podcast, participants are asked to share (via brainstorm) perceived strengths and weaknesses of the FC approach. On Handout B, participants record which elements of the FC approach they may be able to implement, and then share those aspects with the larger group through discussion. The facilitator records barriers to implementation on a whiteboard, leading into the team-based learning (TBL) activity. Working in small groups, participants are asked to confront and overcome the identified obstacles to implementation using Rotellar and Cain's (2016) 13 Recommendations for Implementing a Flipped Classroom as a guide. Following Handout C, participants work individually (with assistance from the facilitator) to develop an implementation plan for their own FC, following Kim et al. (2014). Then, participants receive oral feedback from their peers (following Handout D).

At the end of the workshop, participants submit a final unanswered question to the facilitator, as well as all written materials compiled during the in-class time. To the best of their ability, the facilitator should answer the participants questions the following day via email. Attached to that email, participants receive written copies of the brainstorm activity, the TBL activity, and implementation strategies from their colleagues that they can use to refine their own plans to implement FCs. The facilitator may also include additional resources regarding implementing FCs (see: additional resources). As a further modelling exercise, this follow-up process with the workshop participants reinforces the value of collaborative in-class work while championing the FC ideal that learning can and should be done on the participants' own time.

ADDITIONAL REFERENCES

- Butt, A. (2014). Student views on the use of a flipped classroom approach: Evidence from Australia. *Business Education & Accreditation*, (6)1, 33-43.
- Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*, 4(3), 307-323.
- DeGrazia, J. L., Falconer, J. L., Nicodemus, G., & Medlin, W. (2012). *Incorporating screencasts into chemical engineering courses*. Paper presented at the ASEE Annual Conference & Exposition, Atlanta, USA.
- Gallimore, R. (2006, March). What John Wooden can teach us: Was the 'greatest coach of the 20th century' a crafty wizard, or a master teacher? *Education Week*, 25(25), 30-31.
- Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university: An exploration of design principles. *The Internet and Higher Education*, 22, 37-50.
- Mason, G. S., Shuman, T. R., & Cook, K. E. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upper-division engineering course. *IEEE Transactions on Education*, 56(4), 430-435.

APPENDIX A: SUPPLEMENTARY MATERIAL FOR FACILITATORS

Additional Flipped Classroom Readings

- Estes, M., Ingram, R., & Liu, J. C. (2014, July). A review of flipped classroom research, practice, and technologies. Retrieved from <https://www.hetl.org/a-review-of-flipped-classroom-research-practice-and-technologies/>
- Roehl, A., Reddy, S. L., & Shannon, G. J. (2013). The flipped classroom: An opportunity to engage millennial students through active learning strategies. *Journal for College Sciences*, 105(2), 44-49.
- Song, Y., Jong, M. S. Y., Chang, M., & Chen, W. (2017). "HOW" to design, implement and evaluate the flipped classroom? – A synthesis. *Educational Technology & Society*, 20(1), 180-183.

Additional Coaches Education Readings

- Burden Jr., J. W., & Lambie, G. W. (2011). Sociocultural competencies for sport coaches: A proposal for coaches and coach education. *Journal of Coaching Education*, 4(3), 3-29. <https://doi.org/10.1123/jce.4.3.3>
- Demers, G., Woodburn, A. J., & Savard, C. (2006). The development of an undergraduate competency-based coach education program. *The Sport Psychologist*, 20, 162-173.

Additional Video Resources

- TEDx Talks. (2015, October 13). *Reimagining classrooms: Teachers as learners and students as leaders* [Video file]. Retrieved from <https://www.youtube.com/watch?v=w6vVXmwYvgs>
- TEDx Talks. (2013, October 4). *Flipping the classroom – my journey to the other side: Jenn Williams at TEDxRockyViewSchoolsED* [Video file]. Retrieved from <https://www.youtube.com/watch?v=Y3b9tCmUmA4>
- TEDx Talks. (2012, August 1). *Flipped classroom: Nick Shepherd at TEDxMCPSTeachers* [Video file]. Retrieved from https://www.youtube.com/watch?v=etQJPG_CY78

APPENDIX B: Handouts A-D

Handout A: Teaching and Learning

Instruction: In the space provided, draw a typical in-class meeting with your players.

Include: Room dimensions, seating arrangement, technology, instructor/coach placement, timing (including meeting duration and time of day), teaching strategies used, and other information you feel may be relevant to a teaching/learning discussion.

A large, empty rectangular box with a thin black border, intended for a drawing or diagram of a typical in-class meeting. The box is oriented vertically and occupies the lower half of the page.

Handout B: Brainstorm Activity

Instruction: In the spaces provided, list/describe aspects of FCs you are most confident you can apply with your teams. Also list what aspects of FCs you are least confident you can implement with your teams (include why that is the case).

Aspects of FCs you are most confident you can apply with your teams:

Aspects of FCs you are least confident you can implement with your teams (and why):

Handout C: Implementation Plan**Instructor:****Team:****Content:****Pre-Class Activity****In-Class Activity****Post-Class Activity**

Handout D: Design Principles & Recommendations for FCs

Instruction

Design principles for the flipped classroom and recommendations for implementing a flipped classroom are provided as Appendices 1 and 2 of the following paper:

- Rotellar & Cain (2016). Research, perspectives, and recommendations on implementing the flipped classroom. *American Journal of Pharmaceutical Education*, 80(2), 1-9.

Before the workshop, create a handout that shares the list of principles and recommendations. During the workshop, ask participants to reference this list when providing feedback to each other on their planned FCs.

Questions prompts:

- Which of the nine design principles does the planned FC clearly incorporate?
- Which design elements are missing? How can they be incorporated?
- Does the planned FC align well with the recommendations for implementation?
- What aspects of the implementation need additional clarification?