Dartmouth GEISEL SCHOOL OF MEDICINE | ACADEMY OF EDUCATORS AND SCHOLARS

Can’t I Just Write it up?

The importance of conceptual frameworks

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Quick Warm Up

Write down any questions you can think of about learners, education, or teaching.

How are students using AI?

Do students perform better on exams if they are mainly watching lecture recordings?

What can I do to increase engagement in team-based learning activities?

What motivates students to engage in the supplementary resources provided for a course?

How should medical educators utilize AI?

Learning Objectives

- Explain and give examples of conceptual frameworks
- Practice applying conceptual frameworks to a health professions education research problem
- Identify how conceptual frameworks are used at each step of the research and writing process

Definitions

- **Theory** - structured set of ideas used to explain, predict, and understand phenomena. Describes how and why variables or concepts are related.
- **Theoretical Framework** - provides the conceptual lens that guides a study by grounding it in established theories, concepts, and assumptions. It explains why the research problem exists and situates the study within broader scholarly knowledge.
- **Conceptual Framework** - structured representation of the key concepts and expected relationships that define a research problem, linking theory, prior evidence, and researcher assumptions to guide analysis and interpretation.

Agenda

Section	Time
Welcome and Learning Objectives	10 min
Why Frameworks?	10 min
Social Cognitive Theory	25 min
Theory of Planned Behavior	25 min
Research Application	15 min
Wrap Up	5 min

Can’t I just Write It Up?

Data without frameworks = storytelling, not science

Frameworks provide: theoretical grounding, predictive power, generalizability

What makes a framework useful?

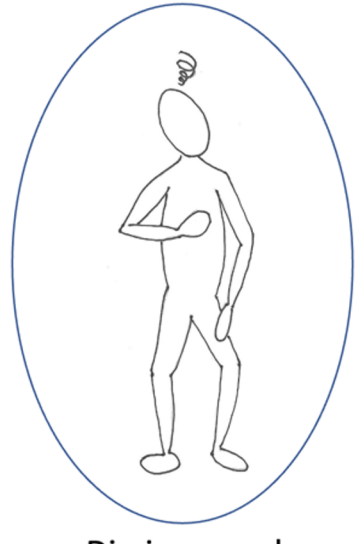
- Alignment with your research question
- Empirical support in the literature
- Guides methods and helps determine variables
- Informs sampling and context
- Shapes data collection and analysis

So how does this all work?

Consider a patient with dizziness and intermittent vomiting

Image Credit: *S. Rougas (2019)*

Consider 3 different ways of "seeing" this symptom



Dizziness and intermittent vomiting

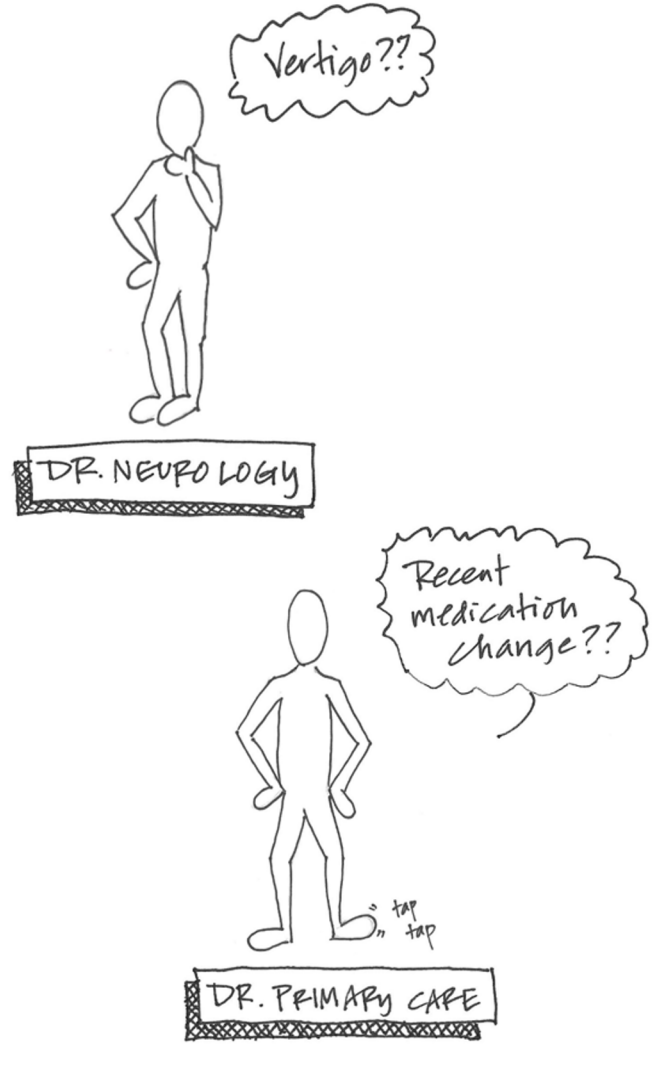


Image Credit: *S. Rougas (2019)*

Now change the patient to a learner…

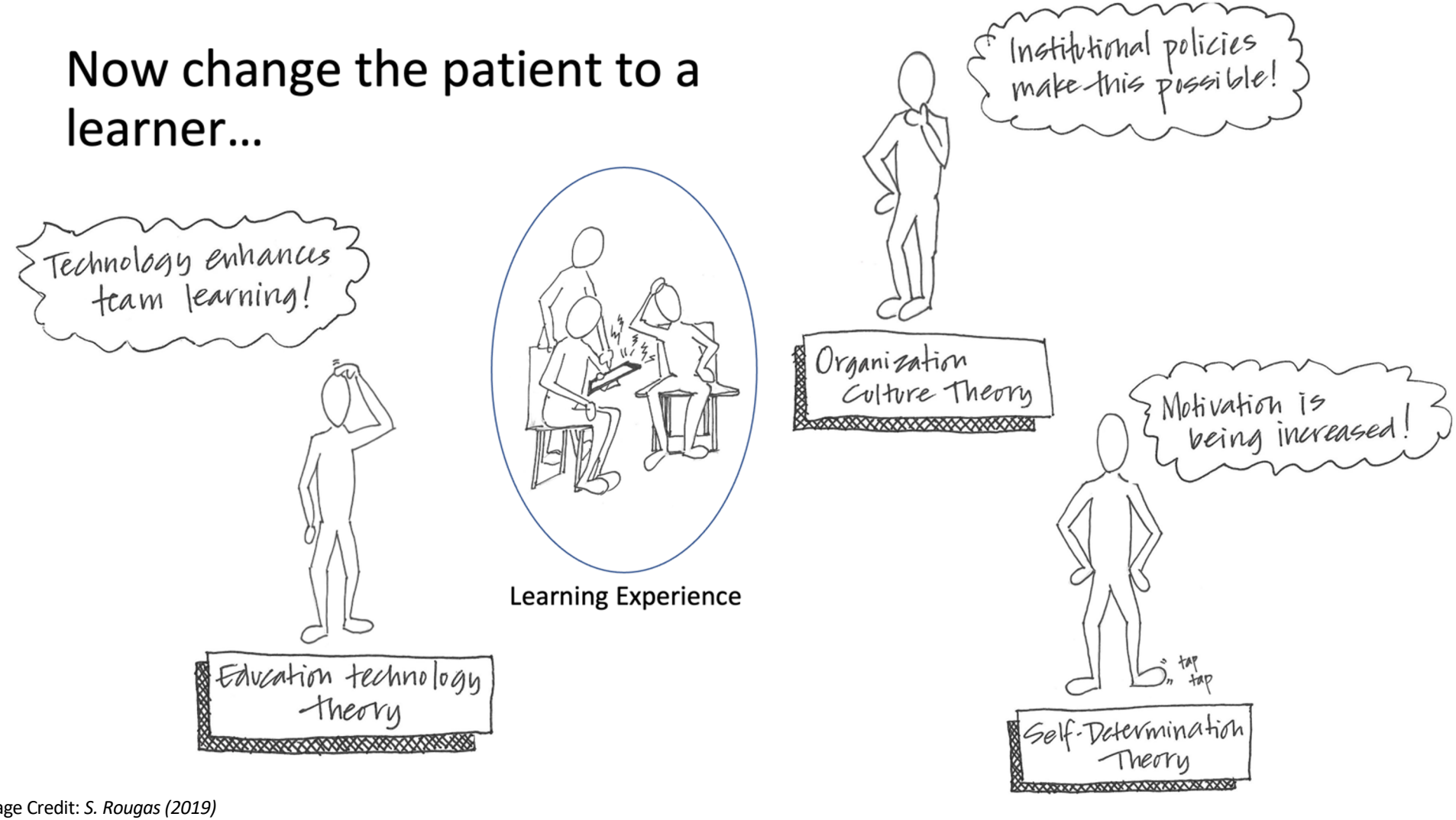


Image Credit: *S. Rougas (2019)*

Three different ways of "seeing" the learning experience

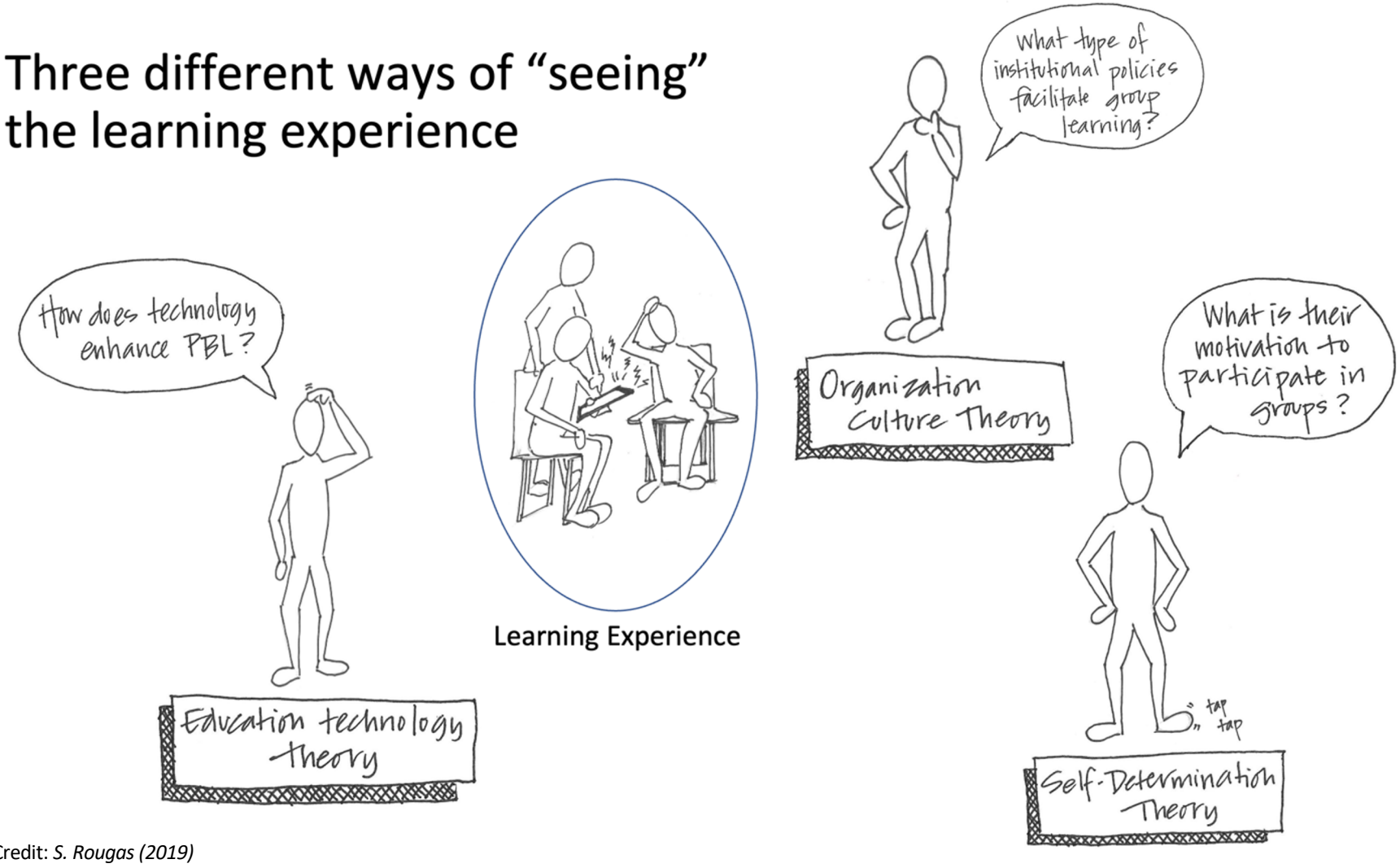
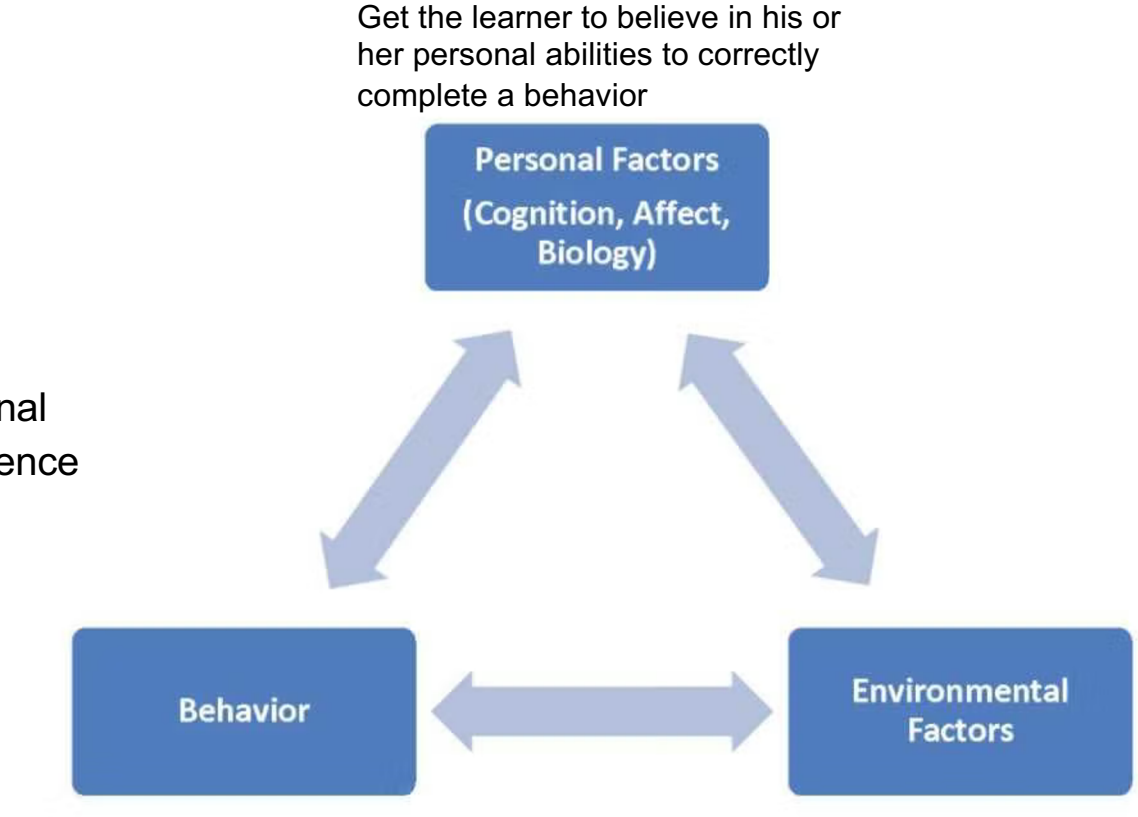


Image Credit: *S. Rougas (2019)*

Social Cognitive Theory

Bandura proposed the idea of reciprocal determinism, in which our behavior, personal factors, and environmental factors all influence each other (1986).



Core concepts of SCT

1. **Modeling/observational learning**

- from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action.

Modeling has 4 steps:

- Attention: someone or something gets the learner's attention
- Retention: the information is retained
- Production: practice and application
- Motivation: positive feedback

Core concepts of SCT

2. Outcome expectancies

- Learner anticipates similar outcomes when imitating the behavior - thus modeling impacts cognition and behavior.
- The instruction a teacher provides help students see what outcome a particular behavior leads to.
- Teach a student that when a behavior is successfully learned, the outcomes are meaningful and valuable to the student.

Core concepts of SCT

3. Self-regulation

- Learner sets a standard of performance for themselves, and judges their behavior to determine whether or not it meets the self-determined criteria for reward.
- If activities do not have absolute measures of success, the individual often sets their standards in relative ways.
- Standards can be set through modeling.

Core concepts of SCT

4. Self Efficacy

- The extent to which an individual believes that they can master a particular skill.

Self-efficacy can be developed or increased by:

- Mastery: Simple tasks that lead to more complex objectives.
- Social modeling: Show the processes that accomplish a behavior.
- Improving physical and emotional states: Ensure rest and relaxation before a practicing new behavior.
- Verbal persuasion: Provide encouragement.

ACTIVITY

Social Cognitive Theory

Theory of Planned Behavior

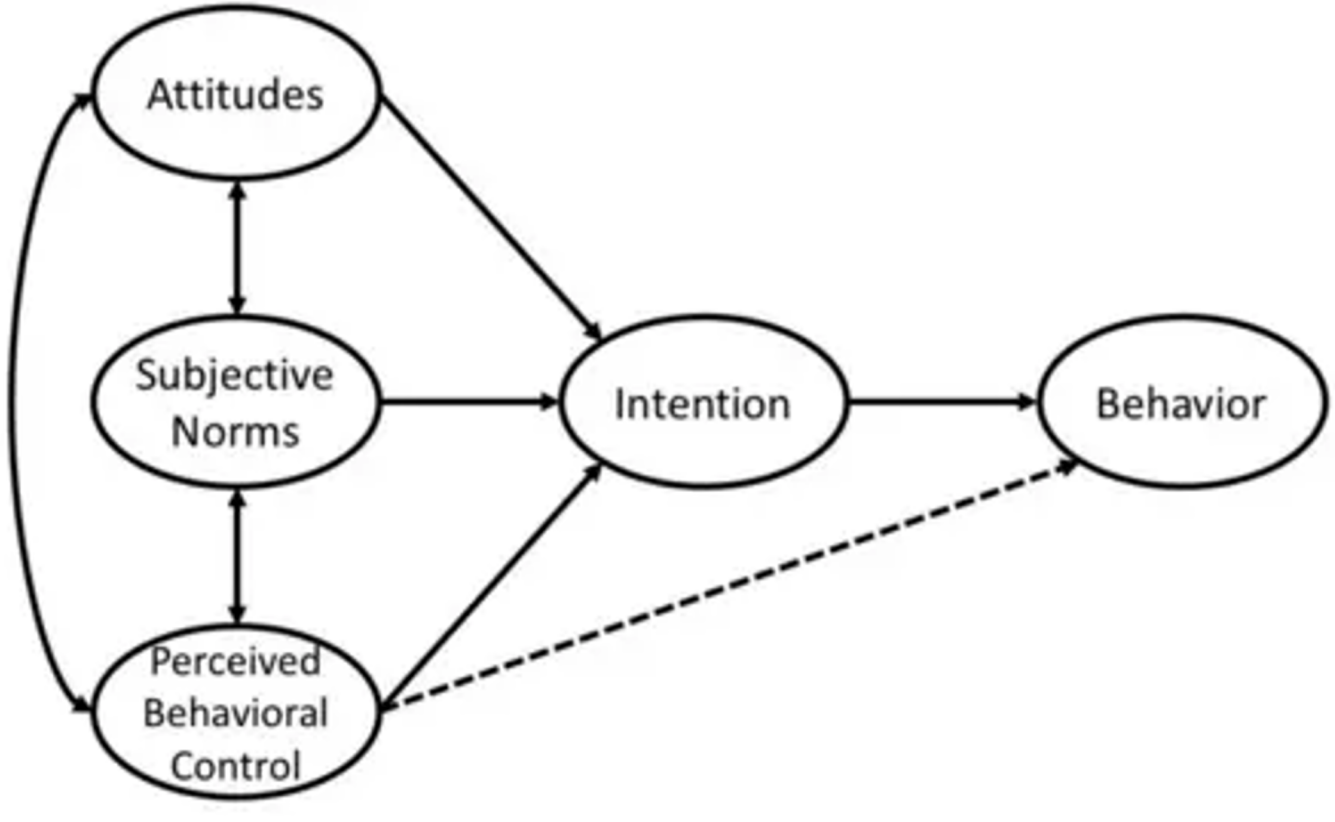


Image Source: https://ascnhighered.org/ASCN/change_theories/collection/planned_behavior.html

Ajzen, 1991

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The relationship between the theory of planned behavior and medication adherence in patients with epilepsy

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ABSTRACT

Purpose: The aim of this study was to apply the theory of planned behavior (TPB) with two other factors (action planning and coping planning) to the medication adherence of adults with epilepsy.
Methods: We measured the elements of the theory of planned behavior (attitude, subjective norm, perceived behavioral control, and behavioral intention), action planning, and coping planning at baseline among adults with epilepsy ($n = 567$, mean $\pm$ SD age $= 38.37 \pm 6.71$ years, male $= 48.5\%$). Medication adherence was measured using the Medication Adherence Report Scale (MARS) and antiepileptic serum level at the 24-month follow-up. Structural equation modeling (SEM) examined three models relating TPB elements to medication adherence.
Results: Three SEM models all had satisfactory fit indices. Moreover, attitude, subjective norms, perceived behavioral control, and intention together explained more than 50% of the variance for medication adherence measured using MARS. The explained variance increased to 61.8% when coping planning and action planning were included in the model, with coping planning having greater association than action planning. In addition, MARS explained 3 to 5% of the objective serum level.
Conclusion: The theory of planned behavior is useful in understanding medication adherence in adults with epilepsy, and future interventions may benefit by improving such beliefs as well as beliefs about coping planning.
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RESEARCH

Using the Theory of Planned Behavior to Evaluate Factors That Influence PharmD Students' Intention to Attend Lectures

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Objective. To use the theory of planned behavior (TPB) to evaluate the contribution of attitude, subjective norm, and perceived behavioral control in predicting students' intention to attend class lectures in a Doctor of Pharmacy (PharmD) curriculum in which lecture recordings were available.
Methods. A survey instrument based on the TPB was developed from focus groups with PharmD students. The survey was then distributed to first through third year students at the conclusion of the 2017-2018 academic school year. Respondents were asked to evaluate their beliefs regarding lecture attendance and their intention to attend lectures during the upcoming fall semester. Predictors of intention were evaluated using descriptive statistics and multiple logistic regression analyses.
Results. Responses from 198 of 383 students contained usable data (52% effective response rate). The TPB constructs of attitude and subjective norm were predictors of high intention to attend lectures. Students with a positive attitude towards lecture attendance (eg, believed that purposeful active learning is desirable and occurs during class) were nearly 30% more likely to have high intention to attend lectures. Students with a positive subjective norm (ie, perceived social pressure from professors and classmates to attend lectures) were 66% more likely to have high intention to attend lectures. Perceived behavioral control was not associated with high intention to attend lectures.
Conclusion. Interventions aimed at improving students' attitudes and subjective norm may be beneficial in improving students' intention to attend class lectures.

Keywords: absenteeism, recording, pharmacy, student, attendance

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Behavioral characterization of critical thinking in higher education: perspectives from the theory of planned behavior

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Abstract

Despite critical thinking (CT) being a focal point in higher education, gaps remain in comprehending the psychological factors underlying the formation of CT disposition and its transition into actual CT behavior. To address the gap, we introduce a behavioral perspective to CT research that is based upon the Theory of Planned Behavior (TPB). We first identify the theoretical cohesion between CT and TPB, conceptualizing CT disposition as *behavioral intention* and performing CT action as *behavior*. We identify the three TPB-based psychological antecedents to CT disposition, namely, *attitude*, *perceived behavioral control*, and *subjective norms*. To operationalize CT disposition, we adopt the constructs of *critical openness* and *reflective skepticism*. The theoretical propositions are then empirically validated through a survey of 363 undergraduates in Singapore. Results indicate significant relationships between the antecedents and CT dispositions, with a partial effect for subjective norms. Particularly, subjective norms significantly enhance reflective skepticism but have a minimal effect on critical openness. However, a gap between students' CT disposition and students' performance is observed. The insights gained from the findings will be useful in guiding the development of psychological interventions for CT development.

Keywords Critical thinking · Higher education · Theory of Planned Behavior · Structural equation modeling

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RESEARCH

Using the Theory of Planned Behavior to Evaluate Factors That Influence PharmD Students' Intention to Attend Lectures

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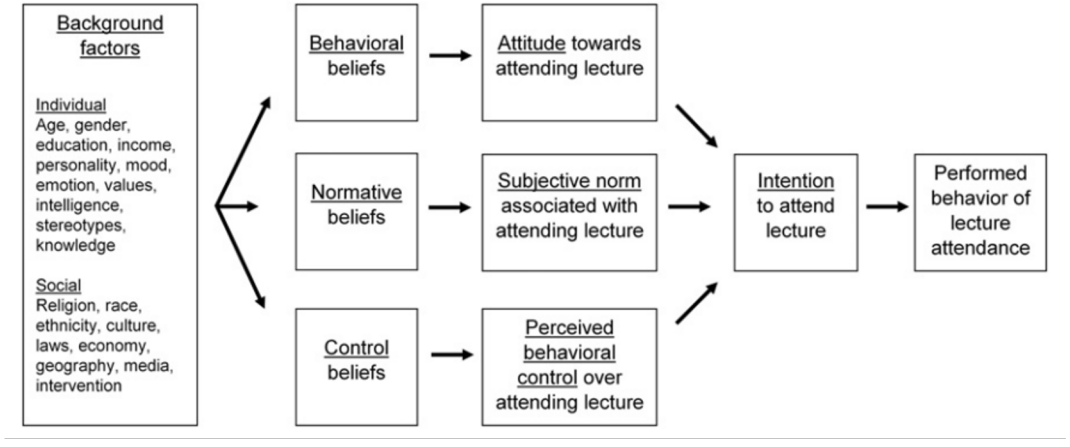

Check for updates

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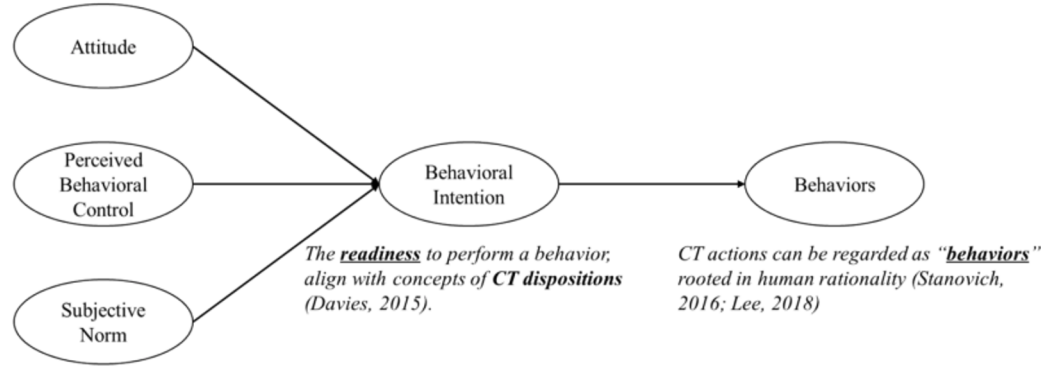

Fig. 1 TPB framework and its synergies with CT context

ACTIVITY

Theory of Planned Behavior

Using the framework	Theory of Planned Behavior
What research question will help you address the gap/problem in the above scenario?	
How would the research question be affected by using TPB as a lens for viewing the learning (and feedback) process?	
In what areas of the project could TPB be used? Consider: ● Content (What to study?) ● Methods (How to study?) ● Interpretation (So what? What's next?)	

Resources on Theories and Frameworks

- Handout
  - Situated Learning Theory
  - Social Cognitive Theory
  - Theory of Planned Behavior
  - Social Ecological Model
  - Professional Identity Formation
- MedEdMentor - mededmentor.org/theory-database/ten-essential-theories/
- RHIHub - ruralhealthinfo.org/toolkits/health-promotion/2/theories-and-models

MEDEDMENTOR

RHI HUB

ACTIVITY

Study Development

Developing questions using frameworks

- Look back at some of the questions from our warm up activity
- Select one to work on

What framework would best support this study?	
What research question will align with the framework?	
How does the framework drive the content, methods, or interpretation of the study?	

Strategies for presenting findings using frameworks

- Make the theory or framework visually explicit
- Align the structure of results with the theory or framework
- Use the language of the framework in reporting
- Demonstrate how the findings support, extend, or challenge the framework
- Link the framework to implications and limitations

In conclusion

Frameworks aren't optional:
They are a best practice for research in health professions education