

# Need Satisfaction and Learning Outcomes: A Comparative Study of Synchronous and Asynchronous Learning Contexts

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## Introduction

- Self-Determination Theory - all students have psychological needs for:
  - **Autonomy** (Deci & Ryan; Ryan & Connell, 1989; Ryan et al., 1992)
  - **Competence** (Deci & Ryan, 1985)
  - **Relatedness** (Baumeister & Leary, 1995)
- Students show autonomous motivation, & deeper learning when these needs are met
- Most research focused on in-person learning, less is known about online learning (Bedenlier et al., 2020; Chen & Jang, 2010; Chiu & Hew, 2018)
- Current study investigates need satisfaction, autonomous motivation, and perceived learning differs by course format.

## Research Questions

- Are there differences by class format (online asynchronous, hybrid--in person and online, and online synchronous) in
  - Student need satisfaction (autonomy, competence, relatedness)
  - Student motivation (intrinsic, identified, introjected, external, amotivation)
  - Perceived learning

## Methods

- 56 participants (10.7% male, 87.5% female, 1.8% non-binary)
  - ▢ 12.5% Hybrid (in person & online)
  - ▢ 37.5% Asynchronous online
  - ▢ 50.0% Synchronous online
- Participants completed the following questionnaires.
  - Basic Psychological Need Satisfaction & Frustration Scale (BPNSNF; Levesque-Bristol et al., 2010)
  - Academic Motivation Scale (Vallerand et al. 1992, 1993)
  - Perceived Learning Scale (Alvavi, 1994)

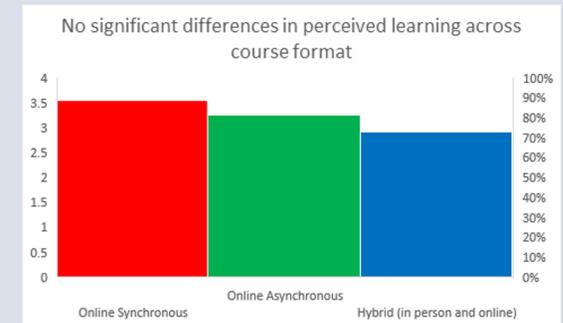
## Results

We ran a series of one-way ANOVAS to detect any differences in motivational outcomes by course format (online asynchronous, hybrid—combination of online and in person, and online synchronous). There were **no statistically significant differences between the three course formats** on end of semester

- Psychological need satisfaction
  - autonomy:  $F(2, 56) = .772, p = .466$
  - competence:  $F(2, 56) = 1.112, p = .336$
  - relatedness  $F(2, 56) = .1463, p = .241$
- Motivation
  - intrinsic:  $F(2, 56) = .270, p = .764$
  - identified:  $F(2, 56) = .369, p = .693$
  - introjected:  $F(2, 56) = .084, p = .919$
  - external:  $F(2, 56) = .549, p = .581$
  - amotivation:  $F(2, 56) = .838, p = .438$

## Results Cont.

- Perceived learning ( $F(2, 56) = .236, p = .104$ )



## Discussion

- There were **no differences** in any need satisfaction, motivation, or perceived learning **across course format**.
- Future research should look at **individual differences as potential moderators**, such that some course formats may facilitate motivation for some students but not others.
- Future research will identify **factors beyond course format** that might facilitate motivation, including specific teacher behaviors and instructional practices.