The Impact of Disengagement on Learning

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Method

Structural Equation Modeling (SEM)

Measurement Invariance

Disengagement Factors

- ***Interactional Disengagement:***
  - Students who are interactionally disengaged are not contributing to class discussions, asking questions in class, interacting with faculty in and out of class, and taking an interest in a course that resulted in doing more work*.*

- ***Class Irresponsibility***
  - Students exhibiting class irresponsibility are failing to complete assigned readings, going to class unprepared, skipping class, and turning in assignments late.

- ***Low Time Usage***
  - These students spend fewer hours attending class, discussion sections, labs, or studying outside of class.

Learning Outcome Factors

- ***Knowledge and Comprehension***
  - The knowledge and comprehension factor embraces analytical and critical thinking skills, clear and effective writing, comprehending academic material, understanding a field of study, and understanding international perspectives*.*
- ***Communication Skills***
  - Communication Skills include leadership, speaking, interpersonal, and presentation skills.
- ***Cultural Appreciation***
  - Ability to appreciate diversity (cultural, global, racial, ethnic) and fine arts.
- ***Research Skills***
  - Library and other

Discipline Groups & Sample Sizes

- Group LIFE SCIENCES: 15,614
- Group FINE ARTS: 3,412
- Group SOCIAL SCIENCES: 17,463
- Group PHYSICAL SCIENCES: 19,486
- Group BUSINESS: 8,454
- Group LIBERAL ARTS: 9,200
- Group PUBLIC ADMINISTRATION: 4,611
- Group INTERDISCIPLINE: 7,372

Controlled Background Variables

- Gender (Male, Female)
- Matriculation (First time in college, Transferred)
- Class Level (Sophomore, Junior, Senior, Freshman)
- Ethnicity (Hispanic, American Indian, Asian, African American, Pacific Islander, White)
- Working Status (Only on campus, Only off campus, Both on and off campus, Not working)
- First Generation (First generation, Not first generation)
- Socioeconomic Status (Middle class, Upper class, Lower class)

Note: The reference level of each variable is indicated in red.

Effect on Knowledge & Comprehension

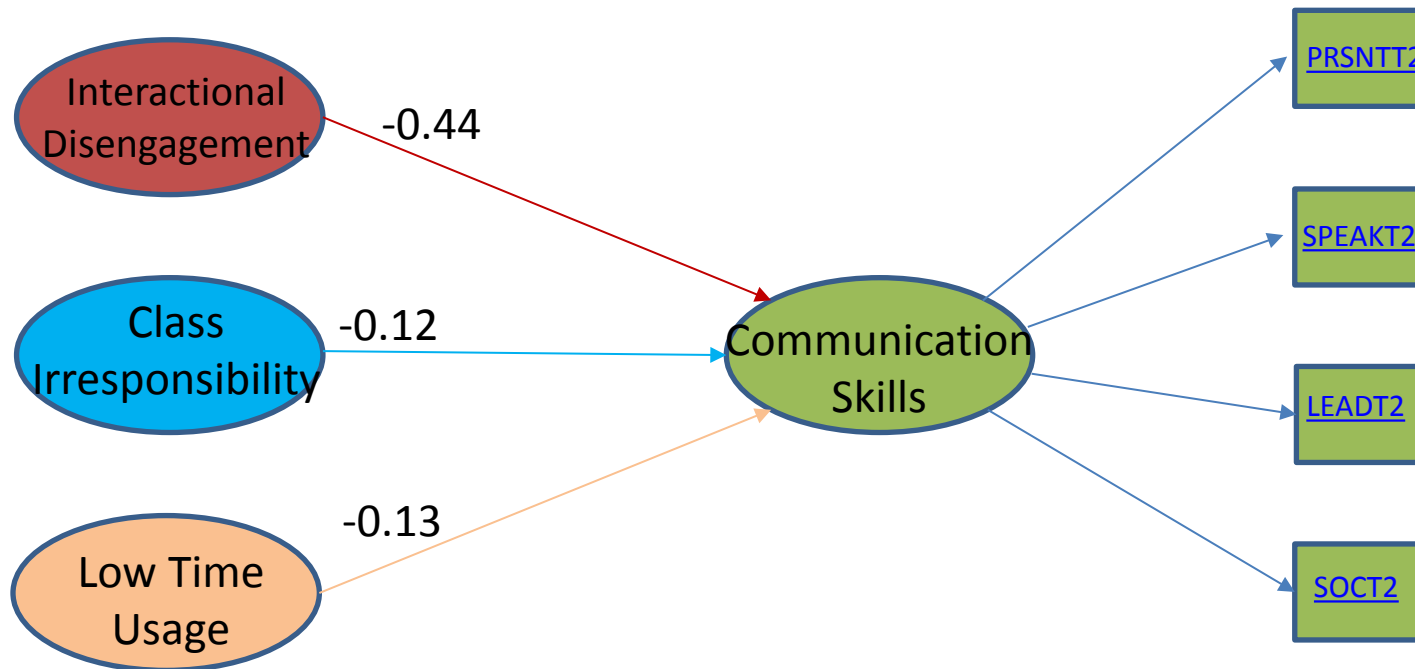|	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
INTERACTIONAL DISENGAGEMENT	-0.42	-0.46	-0.42	-0.39	-0.43	-0.46	-0.45	-0.44	-0.43
CLASS IRRESPONSIBILITY	-0.15	-0.19	-0.14	-0.16	-0.16	-0.16	-0.14	-0.16	-0.15
LOW TIME USAGE	-0.21	-0.21	-0.16	-0.20	-0.17	-0.18	-0.17	-0.17	-0.16

Note: Path Coefficient Estimates indicate the size and direction of the influence of the predictor on criterion.
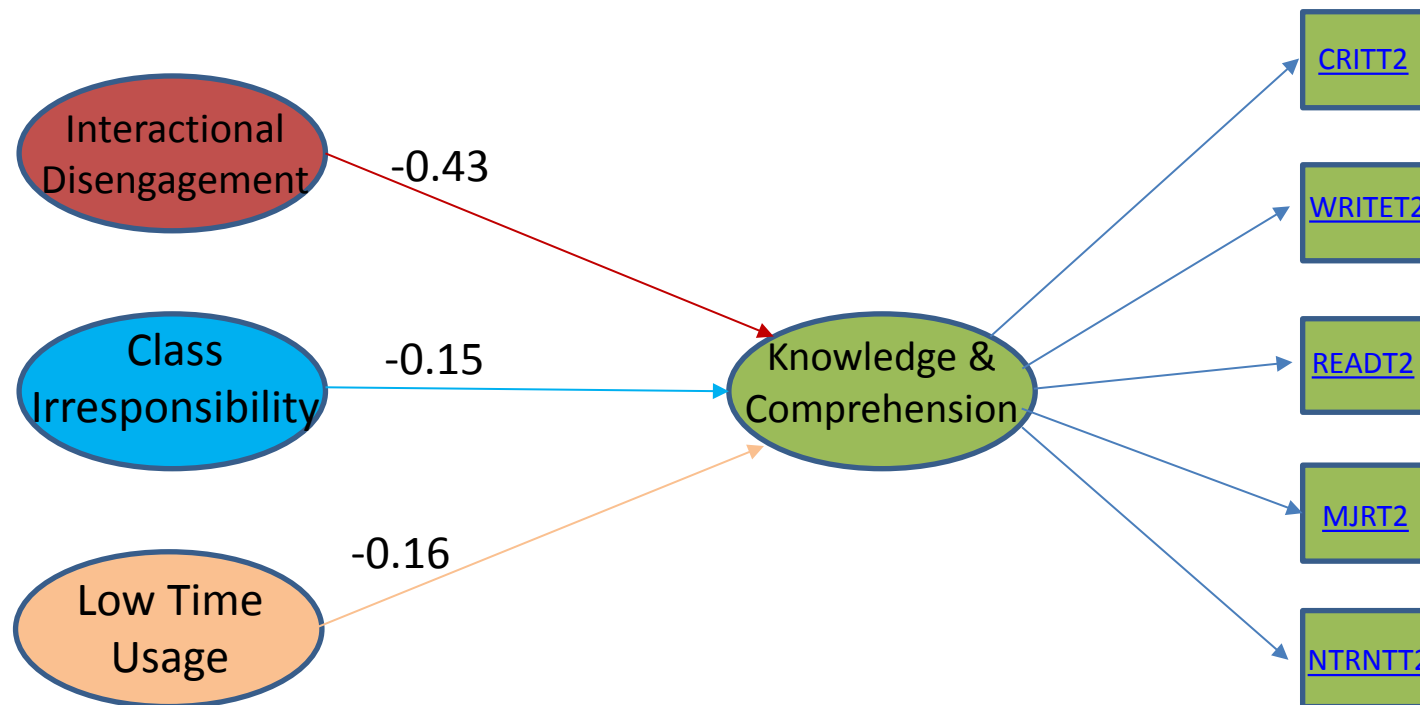
Effect on Communication Skills

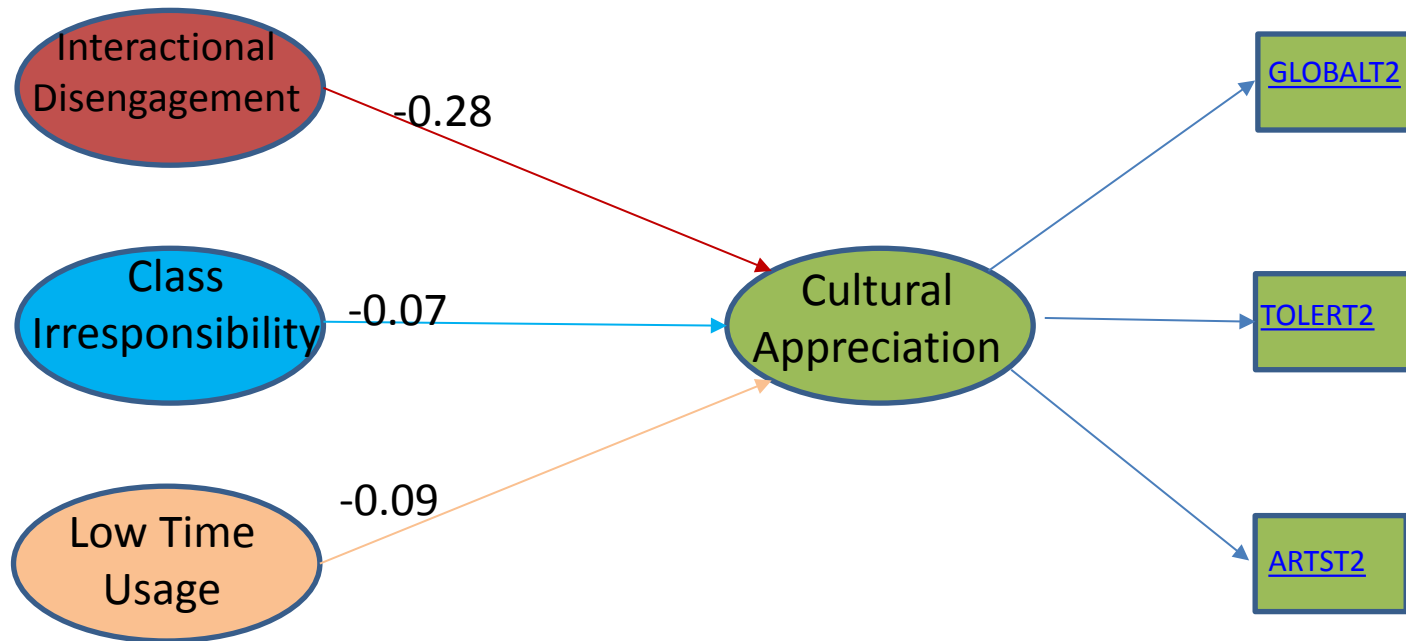|	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Admini-stration	Inter-discipline	Overall
INTERACTIONAL DISENGAGEMENT	-0.46	-0.52	-0.43	-0.41	-0.44	-0.48	-0.48	-0.44	-0.44
CLASS IRRESPONSIBILITY	-0.10	-0.15	-0.11	-0.13	-0.11	-0.12	-0.09	-0.11	-0.12
LOW TIME USAGE	-0.19	-0.19	-0.14	-0.18	-0.13	-0.16	-0.18	-0.16	-0.13

Note: Path Coefficient Estimates indicate the size and direction of the influence of the predictor on criterion.

Effect on Cultural Appreciation

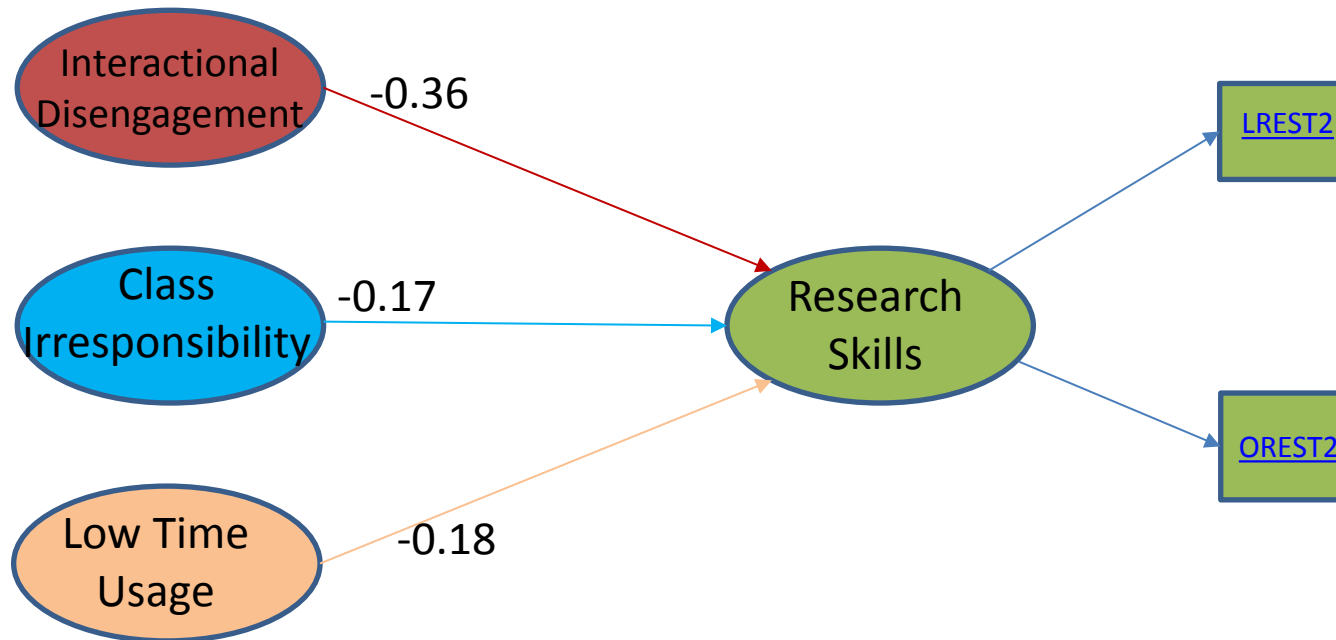|	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
INTERACTIONAL DISENGAGEMENT	-0.24	-0.31	-0.27	-0.23	-0.27	-0.30	-0.26	-0.29	-0.28
CLASS IRRESPONSIBILITY	-0.05	-0.08	-0.08	-0.08	-0.07	-0.10	-0.01	-0.08	-0.07
LOW TIME USAGE	-0.14	-0.13	-0.12	-0.10	-0.08	-0.14	-0.08	-0.12	-0.09

Note: Path Coefficient Estimates indicate the size and direction of the influence of the predictor on criterion.

Effect on Research Skills

	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
INTERACTIONAL DISENGAGEMENT	-0.36	-0.36	-0.35	-0.37	-0.33	-0.38	-0.35	-0.37	-0.36
CLASS IRRESPONSIBILITY	-0.13	-0.21	-0.18	-0.17	-0.16	-0.19	-0.13	-0.16	-0.17
LOW TIME USAGE	-0.22	-0.22	-0.21	-0.19	-0.20	-0.21	-0.15	-0.21	-0.18

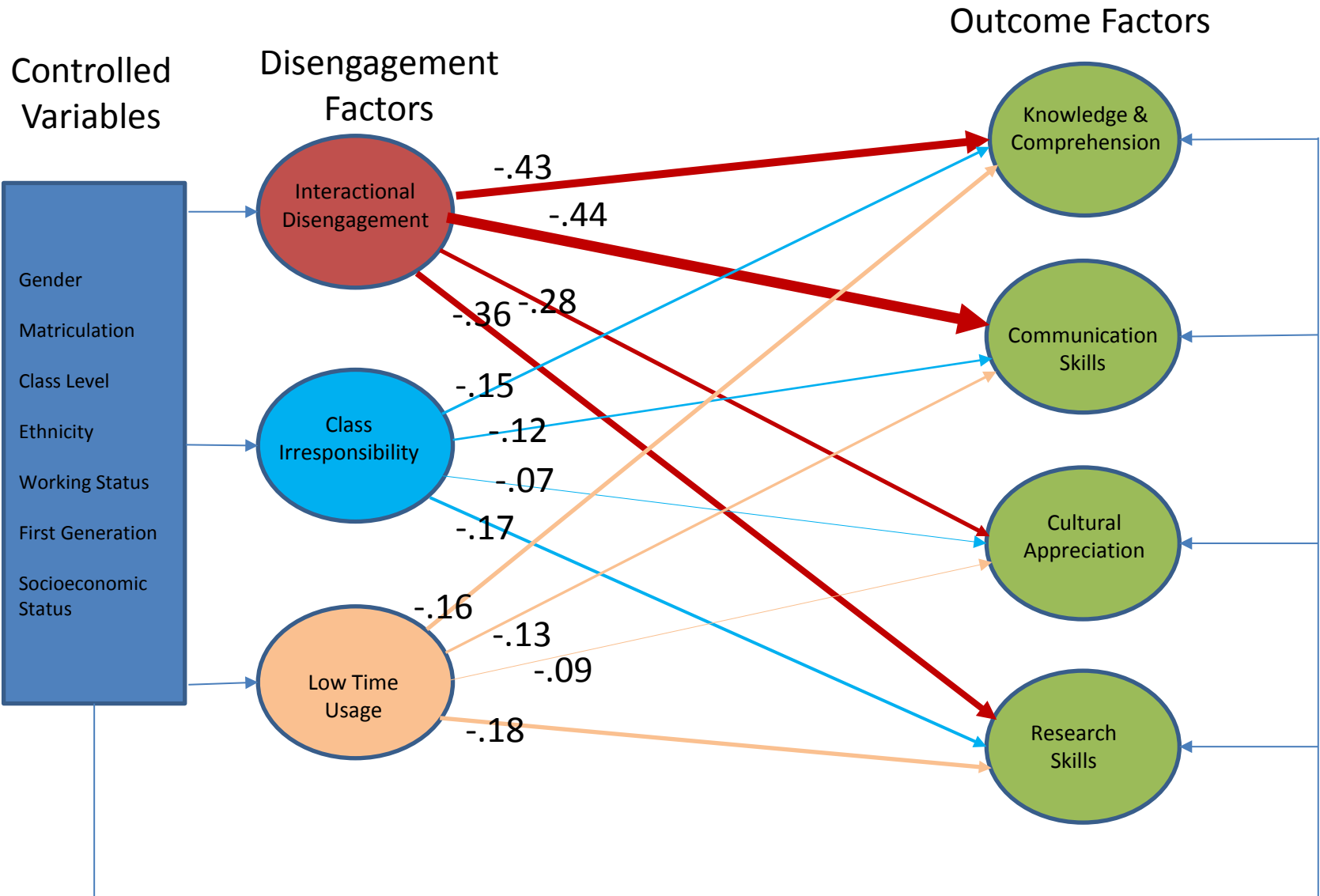Note: Path Coefficient Estimates indicate the size and direction of the influence of the predictor on criterion.

SEM Model

Interactional Disengagement

	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
MALE	-0.21	-0.13	-0.15	-0.11	-0.16	-0.13	-0.10	-0.18	-0.08
1ST TIME IN COLLEGE	0.12	0.19	0.08	0.18	0.13	0.14	0.26	0.25	0.17
SOPHMORE	0.05	-0.09	0.07	0.12	0.01	-0.04	0.01	0.00	0.07
JUNIOR	0.05	-0.18	0.04	0.06	-0.02	-0.17	-0.11	-0.02	0.02
SENIOR	-0.18	-0.35	-0.04	-0.08	-0.13	-0.41	-0.25	-0.14	-0.11
HISPANIC	0.12	0.23	0.14	-0.02	0.01	0.12	0.12	0.06	0.08
AMERICAN INDIAN	0.07	-0.34	-0.19	-0.05	-0.03	0.01	-0.26	-0.38	-0.10
ASIAN	0.30	0.50	0.31	0.06	0.19	0.27	0.45	0.31	0.29
AFRICAN AMERICAN	-0.16	-0.04	-0.18	-0.15	-0.17	-0.03	-0.11	-0.19	-0.15
PACIFIC ISLANDER	0.12	0.37	0.20	0.18	-0.03	0.37	0.53	0.17	0.19
BOTH ON OFF	-0.37	-0.36	-0.34	-0.36	-0.31	-0.22	-0.32	-0.30	-0.37
ONLY ON	-0.18	-0.16	-0.17	-0.21	-0.11	-0.10	-0.16	-0.12	-0.17
ONLY OFF	-0.12	-0.18	-0.14	-0.09	-0.13	-0.09	-0.18	-0.16	-0.16
1ST GENERATION	0.10	0.13	0.07	0.15	0.11	0.09	0.00	0.10	0.09
MIDDLE CLASS	0.02	0.03	0.04	0.00	-0.02	0.05	0.03	-0.01	0.02
UPPER CLASS	-0.11	-0.11	-0.09	-0.06	-0.18	-0.08	-0.15	-0.12	-0.10

Note: Path Coefficient Estimates indicate the direction and size of the difference between the reported category and its corresponding reference category.

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Class Irresponsibility

	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
MALE	0.10	0.18	0.10	0.18	0.18	0.12	0.12	0.08	0.18
1ST TIME IN COLLEGE	0.20	0.29	0.21	0.17	0.24	0.22	0.37	0.37	0.22
SOPHMORE	0.10	0.10	0.13	0.07	0.04	0.16	0.11	0.21	0.11
JUNIOR	0.16	0.13	0.23	0.16	0.25	0.29	0.32	0.35	0.15
SENIOR	0.31	0.31	0.36	0.35	0.23	0.35	0.45	0.45	0.31
HISPANIC	-0.01	-0.10	-0.10	-0.01	-0.06	-0.01	0.17	0.06	-0.03
AMERICAN INDIAN	0.09	-0.41	-0.06	0.12	0.11	0.09	-0.42	-0.10	0.05
ASIAN	0.20	0.09	0.22	0.20	0.23	0.21	0.39	0.17	0.21
AFRICAN AMERICAN	0.21	0.30	0.08	0.18	0.05	0.08	0.11	0.23	0.17
PACIFIC ISLANDER	0.14	0.37	0.14	0.15	0.26	-0.10	0.21	0.34	0.14
BOTH ON OFF	0.22	0.06	0.27	0.22	0.33	0.26	0.16	0.19	0.21
ONLY ON	0.13	0.11	0.19	0.14	0.10	0.16	0.10	0.15	0.15
ONLY OFF	0.16	0.14	0.11	0.11	0.18	0.07	0.08	0.04	0.10
1ST GENERATION	-0.08	-0.05	-0.11	-0.07	-0.10	-0.08	-0.16	-0.10	-0.09
MIDDLE CLASS	-0.07	-0.08	-0.06	-0.04	-0.08	-0.06	-0.12	-0.13	-0.07
UPPER CLASS	0.01	-0.04	0.01	0.02	-0.03	0.01	-0.15	-0.01	0.00

Note: Path Coefficient Estimates indicate the direction and size of the difference between the reported category and its corresponding reference category.

Low Time Usage

	Life Sciences	Fine Arts	Social Sciences	Physical Sciences	Business	Liberal Arts	Public Administration	Inter-discipline	Overall
MALE	0.16	-0.06	0.09	0.18	0.11	0.06	0.17	0.06	0.03
1ST TIME IN COLLEGE	0.13	0.09	0.10	0.21	0.14	0.07	-0.04	-0.06	-0.01
SOPHMORE	-0.03	-0.20	-0.05	-0.02	0.07	-0.02	-0.05	-0.01	-0.02
JUNIOR	-0.08	-0.22	-0.03	-0.04	0.06	0.09	-0.19	-0.06	-0.02
SENIOR	0.05	-0.17	0.13	0.14	0.28	0.16	0.10	0.18	0.12
HISPANIC	0.13	0.07	0.06	0.15	-0.02	0.15	0.11	0.15	0.13
AMERICAN INDIAN	0.23	0.49	-0.07	0.26	0.04	0.72	0.09	-0.25	0.14
ASIAN	0.13	0.16	0.04	0.23	0.09	0.08	0.16	-0.04	0.08
AFRICAN AMERICAN	0.10	0.09	-0.02	0.19	0.17	0.16	0.12	0.11	0.13
PACIFIC ISLANDER	0.04	0.24	0.11	0.34	0.21	-0.17	0.15	0.22	0.16
BOTH ON OFF	0.26	0.18	0.24	0.34	0.30	0.26	0.32	0.21	0.32
ONLY ON	0.16	0.19	0.15	0.16	0.12	0.12	0.21	0.12	0.16
ONLY OFF	0.27	0.29	0.29	0.41	0.41	0.32	0.38	0.31	0.37
1ST GENERATION	0.07	-0.06	0.09	0.14	0.01	0.06	0.12	0.16	0.09
MIDDLE CLASS	0.01	-0.08	-0.01	-0.02	-0.06	-0.03	-0.07	0.03	-0.03
UPPER CLASS	-0.06	-0.18	-0.02	-0.01	-0.13	-0.11	-0.15	-0.03	-0.05

Note: Path Coefficient Estimates indicate the direction and size of the difference between the reported category and its corresponding reference category.

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Conclusions and Implications, I

- We identified factors of three types of disengagement and four learning outcomes.
- We developed an SEM model that showed the effect of disengagement on learning outcomes.
- **Overall, interactional disengagement has the greatest negative effect on all learning outcomes**, while the effects on knowledge & comprehension and communication skills are the strongest.
- **Therefore, it is reasonable to conclude that reducing interactional disengagement will yield the greatest positive benefit on learning outcomes.**

Conclusions and Implications, II

- **Disengagement has differential impacts on learning outcomes depending on disciplines.**

- The greatest negative impact of disengagement appears to be in disciplines that involve students interactively in the instruction. (E.g., Fine Arts, Liberal Arts.)

- Low time usage appears to have the greatest impact in disciplines that require larger amounts of lab/studio time. (E.g., Life Sciences, Fine Arts.)

Conclusions and Implications, III

- Complexity of disengagement and background variables is best illustrated by student employment.
- Students who have part-time jobs (either on-campus or off-campus) are
  - **more likely** to exhibit "Class Irresponsibility"
  - **more likely** "Low Time Usage."
  - However, they are **less likely** to exhibit "Interactional Disengagement."
- Because "Interactional Disengagement" has greatest negative impact on learning outcomes, we hypothesize that students who have part-time jobs are able to compensate for other patterns of disengagement.

Conclusions and Implications, IV

- Males tend to exhibit greater "Class Irresponsibility" or "Low Time Usage," but less "Interactional Disengagement" than females.

- Transferred students tend to exhibit less disengagement on all factors than First time in college.

- Asian students, the 2nd most populous ethnic group, tend to exhibit more disengagement on all factors than Whites.

- **First generation college students tend to exhibit greater "Interactional Disengagement" and "Low Time Usage," but less "Class Irresponsibility."**

Implications

- Engagement has too often been left up to the students.

- Universities could be proactive in identifying students who are more likely to be disengaged and offer assistance or support. E.g. assisting first generation students in learning how to interact.

- Instructors should recognize students who are more likely to be disengaged in their classes and attempt to engage them.

For Further Research

- Interactions among student background variables.
  - Employment X Gender or Ethnicity
  - Employment X Ethnicity X First generation
- Changes in patterns of disengagement
  - Do students become more or less disengaged over time?
- Effects of other forms of disengagement on learning
  - Motivated disengagement—I just want my degree so I can get out of here
 - Competing alternatives—extra-curricular activities, athletics, community/volunteer service

References

- Brint, Steven and Allison M. Cantwell, (2012) *Portrait of the Disengaged*, Center for Studies in Higher Education, Berkeley, CA, CSHE.9.12 http://www.cshe.berkeley.edu/publications/portrait-disengaged

- Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.

- *First-Generation Students: Undergraduates Whose parents Never Enrolled in Postsecondary Education.* National Center for Education Statistics, Statistical Analysis Report (June 1998)

- Troy, Mark and Yunhee Bae, (2013) *Student Disengagement*, A paper presented at the Texas A&M Annual Assessment Conference, College Station, Texas, February 18, 2013

Disengagement Factors and Measured Variables

- ***Interactional Disengagement***

ITEMS	ITEM LABELS	Factor Loadings
GCLSDIS	During this year, how often have you- Contributed to a class discussion	0.80
GASKIN	During this year, how often have you- Asked an insightful question in class	0.84
GDIFCLS	During this year, how often have you- Brought up ideas or concepts from different courses during class discussions	0.79
LECTURE	How frequently have you engaged - Interacted with faculty during lecture class sessions	0.80
GINTRST	During this year, how often have you- Found a course so interesting that you did more work than was required	0.64
DISCEXT	How frequently have you engaged - Talked with the instructor outside of class about issues and concepts derived from a course	0.76
YCOMMUN	How frequently have you engaged - Communicated with a faculty member by e-mail or in person	0.66

Note: Disengagement is indicated by low performance on these items. Scores were reversed for analysis. Higher scores indicate greater disengagement.
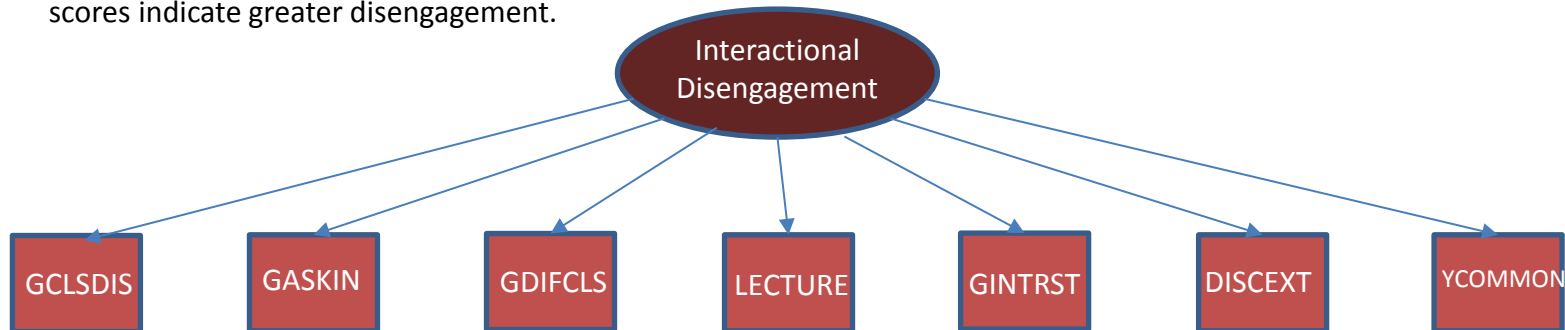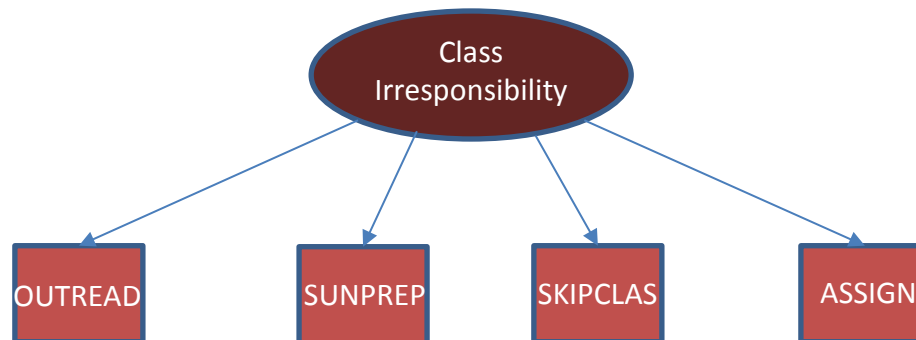
Disengagement Factors and Measured Variables

- ## *Class Irresponsibility*

ITEMS	ITEM LABELS	Factor Loadings
OUTREAD	How frequently have you -Gone to class without completing assigned reading	0.76
SUNPREP	How frequently have you -Gone to class unprepared	0.98
SKIPCLAS	How frequently have you -Skipped class	0.54
ASSIGN	How frequently have you -Turned in a course assignment late	0.46

Note: Disengagement is indicated by high scores on these items.

Disengagement Factors and Measured Variables

- ***Low Time Usage***

ITEMS	ITEM LABELS	Factor Loading
TIMESTDY	How many hours-Studying and other academic activities outside of class	0.74
TIMECLSS	How many hours-Attending classes, discussion sections, or labs	0.52

Note: Disengagement is represented by low number of hours on each variable. Scores were reversed for the analysis. Higher scores indicate greater disengagement.
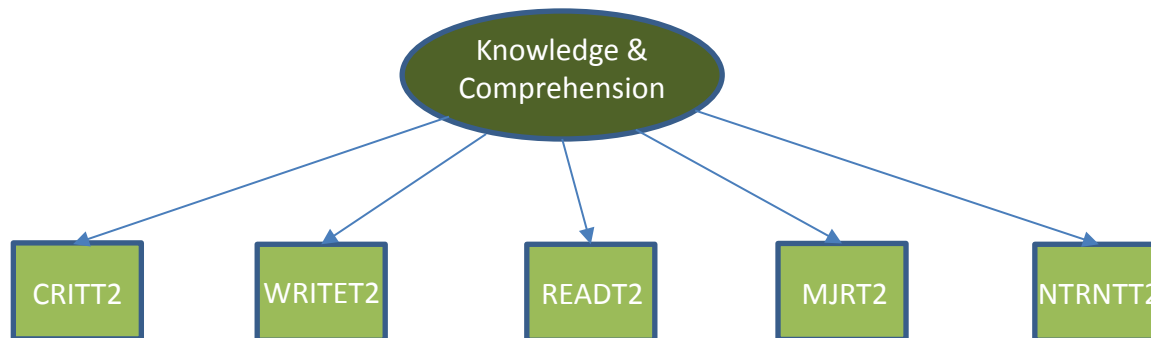

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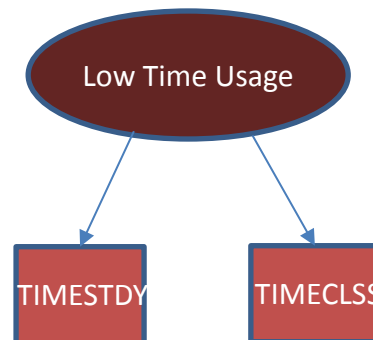
Learning Outcome Factors and Measured Variables

- ***Knowledge and Comprehension***

Please rate your level of proficiency in the following areas now:

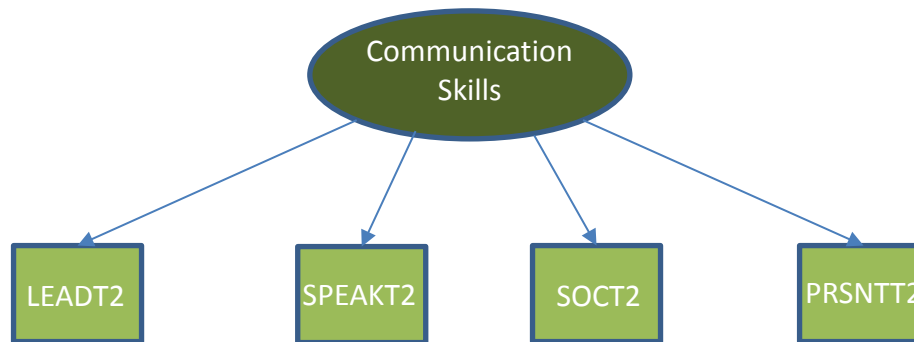| ITEMS	ITEM LABELS	Factor Loadings
CRITT2	Analytical and critical thinking skills	0.79
WRITET2	Ability to be clear and effective when writing	0.74
READT2	Ability to read and comprehend academic material	0.79
MJRT2	Understanding your field of study (i.e., college major)	0.67
NTRNTT2	Ability to understand international perspectives (economic, political, social, cultural)	0.69

Learning Outcome Factors and Measured Variables

- ***Communication Skills***

Please rate your level of proficiency in the following areas now:

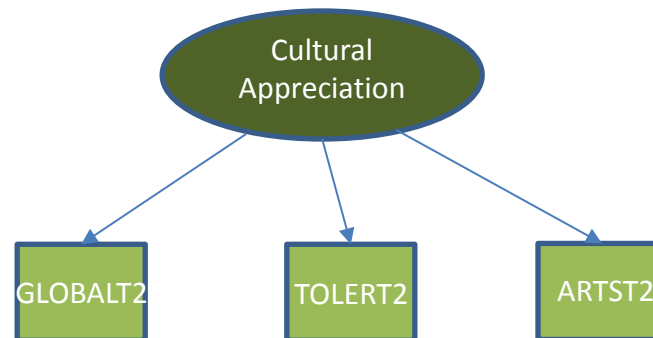| ITEMS	ITEM LABELS	Factor Loadings
LEADT2	Leadership skills	0.77
SPEAKT2	Ability to speak clearly and effectively in English	0.62
SOCT2	Interpersonal (social) skills	0.74
PRSNTT2	Ability to prepare and make a presentation	0.84

Learning Outcome Factors and Measured Variables

- ***Cultural Appreciation***

Please rate your abilities now on the following dimensions:

ITEMS	ITEM LABELS	Factor Loadings
GLOBLT2	Ability to appreciate cultural and global diversity	0.92
TOLERT2	Ability to appreciate and understand racial and ethnic diversity	0.89
ARTST2	Ability to appreciate the fine arts (e.g., painting, music, drama, dance)	0.71

Learning Outcome Factors and Measured Variables

- ***Research Skills***

Please rate your level of proficiency in the following areas now:

ITEMS	ITEM LABELS	Factor Loadings
LREST2	Library research skills (e.g. finding books, articles, evaluating information sources)	0.80
OREST2	Other research skills	0.91