Collaborative Learning

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Learning is collaborative work. Collaborative learning requires students to mutually raise questions, seek understandings, and search for solutions in interactive group settings. Instructors emphasizing collaborative learning motivate students to learn from each other through peer teaching and knowledge exchange. This document provides basic findings for the FSSE Scale Collaborative Learning (CL).

Data Description

The data in this brief come from faculty respondents at 158 four-year colleges and universities that administered the Faculty Survey of Student Engagement (FSSE) in 2022 or 2023. Most, 11,450 out of 15,353 faculty, at these institutions responded to at least one of the Collaborative Learning items. FSSE collects information annually at hundreds of four-year colleges and universities from faculty who teach at least one undergraduate course in the current academic year. The results provide information about faculty expectations for student engagement in educational practices that are empirically linked with student learning and development. Institutions use their data to identify aspects of the undergraduate experience that can be improved through changes in policy and practice. For more information, visit the FSSE website: **fsse.iu.edu**.

Item Information

The CL Topical Module consists of four items within one question stem. Information on these items can be found in Tables 1 and 2. Table 1 contains counts, means, and standard deviations; it additionally contains factor loadings for the items that fit within the Collaborative Learning scale. Table 2 contains frequency percentages for all of the items' response options.

With the highest average and largest proportion of faculty responding "Very much" or "Quite a bit," faculty most substantially emphasize asking other students for help understanding course material in their coursework. Faculty least substantially emphasize preparing for exams by discussing or working through course material with other students in their coursework.

Table 3 contains significant correlations between the individual items in the Collaborative Learning Topical Module. The strongest relationship exists between coursework that emphasizes asking other students for help understanding course material in their coursework and explaining course material to other students ($r = .758$, $p < .01$), between coursework that emphasizes asking other students for help understanding course material in their coursework and working with other students on course projects or assignments ($r = .563$, $p < .01$), and between coursework that emphasizes explaining course material to other students and preparing for exams by discussing or working through course material with other students in their coursework ($r = .600$, $p < .01$). Moderate relationships exist between coursework that emphasizes asking other students for help understanding course material in their coursework and preparing for exams by discussing or working through course material with other students in their coursework ($r = .463$, $p < .01$), between coursework that emphasizes explaining course material to other students and working with other students on course projects or assignments ($r = .452$, $p < .01$) and between coursework emphasizing working with other students on course projects or assignments and prepare for exams by discussing or working through course material with other students (r = .445, p < .01).

Scale Information

The four individual items in the Collaborative Learning module are combined to make one scale: *fCL*. To create these scales, first, the individual responses are recoded to a 0 to 60 scale: Very much=4 is recoded to 60, Quite a bit=3 is recoded to 40, Some=2 is recoded to 20, and Very little=1 is recoded to 0. Individual faculty responses on these 0-60 items are then averaged together to create an aggregate scale score. Information on the *fCL* scale can be found in Table 4. The scale has a high Cronbach's Alpha (.83), suggesting the items are highly correlated and the scales should be considered fairly narrow constructs. The intraclass correlation coefficient (ICC) suggests that 2% of the variation in *fCL* is at the institution level. All factor loadings are high suggesting all items fit well within the construct (Table 1).

Correlations

Table 5 presents correlations between the Collaborative Learning scale and the core survey FSSE Scales. Faculty whose coursework emphasizes collaborative learning (*fCL*) also emphasize quantitative reasoning (r = .421, p < .001). The association between the Collaborative Learning Scale and the other core survey FSSE scales are significant, but weak.

Disciplinary Differences

Faculty incorporation of collaborative learning (*fCL*) varies greatly by faculty's disciplinary area appointment (Figure 1). Faculty who more substantially incorporate such coursework are in the fields of Engineering, Biological Sciences, Agriculture, & Natural Resources, and Communications, Media, & Public Relations. Faculty whose coursework least substantially includes collaborative learning within their coursework are Social Services professions and the Social Sciences. There is noticeable variation within disciplinary areas as well. For example, while faculty in Engineering most substantially engage in collaborative learning compared to other disciplines, Engineering faculty have the largest interquartile range suggesting greater diversity in their incorporation of collaborative learning. Social Service professions, Education, Business, Biological Sciences, Agriculture, and Natural Resources, and Communications, Media, & Public Relations have a comparatively small interquartile range suggesting that faculty in these fields more consistently incorporate collaborative learning within their coursework.

Our Related Papers

For more information about FSSE and collaborative learning see the following publications, conference papers and presentations, research reports or other FSSE investigations focused on the Collaborative Learning Topical modules:

- Hiller, S., & Nelson Laird, T. (November, 2020). Faculty Use of Collaborative Learning and Approaches to Learning: Examining Social Aspects of Online Learning. Roundtable session presented at the Association for the Study of Higher Education.

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- Mu, L., & Ribera, A. K. (2016, June). Mediation effect of collaborative learning for student-faculty interaction. Poster presented at the Association for Institutional Research Annual Forum, New Orleans, LA.
- Ribera, T., Ribera, A.K., BrckaLorenz, A., & Nelson Laird, T.F. (June, 2012). Faculty fostering collaborative learning and personal and social responsibility. Paper presented at the Association for Institutional Research Annual Forum, New Orleans, LA.

Predictors

The incorporation of collaborative learning coursework is more or less likely based on faculty, course, and institution characteristics. Table 6 presents predictors of increased collaborative coursework by faculty, course, and institution characteristics. Following Table 6 are figures (Figures 3-7) representing the average *fCL* scale scores by faculty and institution characteristics with some of the larger differences.

For the incorporation of collaborative course activities, faculty instructing in a traditional course format were more likely to incorporate such activities into their coursework, while faculty facilitating hybrid course formats were least likely to do so. Men or tenured faculty were less likely to incorporate such activities into coursework while those with another gender identity or tenured track faculty were more likely to do so. Faculty at institutions with higher undergraduate enrollment as well as small master's college and universities are also positive predictors of faculty incorporating collaborative learning occurring within their courses.

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Table 1. Collaborative Learning Item Descriptives

Earlier, you answered some questions based on one particular undergraduate course section that you are or have taught during this academic year. In your selected course section, how much do you encourage students to do the following? *Response options*: 4=*Very much*, 3=*Quite a bit*, 2=*Some*, 1=*Very little*	Count	Mean	Std. Dev.	Factor Loading (*fCL*)
Ask other students for help understanding course material (*fCLaskhelp*)	11,445	2.80	.971	.765
Explain course material to other students (*fCLexplain*)	11,445	2.68	.993	.772
Prepare for exams by discussing or working through course material with other students (*fCLstudy*)	11,445	2.60	1.049	.641
Work with other students on course projects or assignments (*fCLproject*)	11,445	2.71	1.049	. 487

Table 2. Collaborative Learning Item Frequencies

Please answer the following questions based on *one particular* undergraduate course section you are teaching or have taught during the current school year. In your selected course section, how much do you encourage students to do the following?	Very much (%)	Quite a bit (%)	Some (%)	Very little (%)
Ask other students for help understanding course material (*fCLaskhelp*)	29.3	30.5	30.6	9.6
Explain course material to other students (*fCLexplain*)	26.1	28.4	33.1	12.4
Prepare for exams by discussing or working through course material with other students (*fCLstudy*)	25.0	28.4	28.5	18.1
Work with other students on course projects or assignments (*fCLproject*)	29.3	28.0	27.3	15.5

Table 3. Significant Correlations between Collaborative Learning Items

	*fCL*askhelp	*fCL*explain	*fCL*study	*fCL*project
Askhelp	1			
Explain	.758**	1		
Study	.463**	.600**	1	
Project	.563**	.452**	.445**	1

Note: **p* < .05, ***p* < .01

Table 4. Collaborative Learning Scale Descriptives

Scale	Count	Minimum	Maximum	Mean	Std. Dev.	Cronbach's Alpha	ICC
fCL	11354	0	60	33.95	16.474	.83	.023

Table 5. Significant (*p* < .001) Correlations between Collaborative Learning Scales and FSSE Scales

	fCL
Higher-Order Learning	.207*
Reflective & Integrative Learning	.155*
Learning Strategies	.266*
Quantitative Reasoning	.421*
Discussions with Diverse Others	.171*
Student-Faculty Interaction	.259*
Effective Teaching Practices	.223*
Quality of Interactions	.085*
Supportive Environment	.187*

Note: *p < .001

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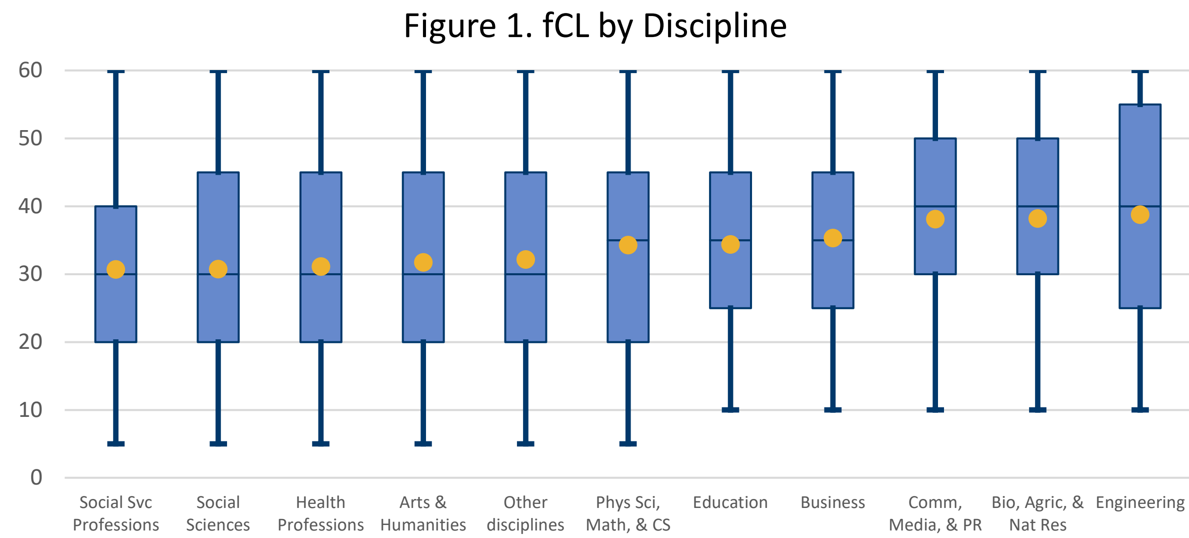

Note: Shaded boxes represent the interquartile range: 2nd quartile (25th percentile) and 3rd quartile (75th percentile). Lower error bar represents the 5th percentile. Upper error bar represents the 95th percentile. The dots represent the mean.

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Table 6. Faculty, Course, and Institution Characteristic Predictors for Collaborative Learning Scale

		Unstd. B	SE	Sig.
(Constant)		34.010	2.790	***
Course division	Lower-division course	-.795	.480	
	Upper-division course	.087	.483	
	Other division course	.708	.742	
Course size	Small course size (<21 students)	-.386	.413	
	Medium course size (21-30 students)	.386	.386	
	Large course size (31+ students)	.000	.423	
Course format	Traditional classroom format	2.881	.767	***
	Classroom at auxiliary location	4.878	1.902	*
	Distance education	.462	1.097	
	Hybrid course	-8.221	.948	***
Disciplinary area	Arts & Humanities	-2.650	.632	***
	Bio Sciences, Agriculture, & Natural Resources	4.280	.968	***
	Physical Sciences, Math, & Computer Sciences	1.413	.932	
	Social Sciences	-3.187	1.332	*
	Business	1.969	1.036	
	Communications, Media, & Public Relations	3.338	1.312	*
	Education	-.536	.872	
	Engineering	4.581	.777	***
	Health Professions	-3.997	.748	***
	Social Service Professions	-5.275	1.685	**
	Other disciplinary fields	.065	1.124	
Academic rank	Professor	-.404	.750	
	Associate Professor	.237	.736	
	Assistant Professor	-.980	.874	
	Instructor	.101	.753	
	Lecturer	.229	.830	
	Other rank	.229	.832	
Tenure status	No tenure system	.227	.846	
	Not on tenure track	.307	.630	
	Tenure track	1.149	.868	
	Tenured	-1.683	.724	*
Number of courses taught this school year		.329	.286	
Years of teaching experience		.173	.406	
Age in years		-.613	.382	
Gender identity	Man	-3.436	1.062	***
	Woman	-.735	1.051	
	Another gender identity	5.777	2.423	*
	I prefer not to respond	-1.606	2.063	
Racial/ethnic identification	American Indian or Alaska Native	1.965	1.751	
	Asian	-.857	1.644	
	Black or African American	3.485	1.829	
	Hispanic or Latino	1.219	5.115	
	Native Hawaiian or other Pacific Islander	2.025	3.150	
	White	-2.734	8.174	
	Other	-2.566	1.362	
	Multiracial	-3.451	3.204	
	I prefer not to respond	.913	1.818	
Holds an earned doctorate		1.104	.778	
US citizen		.817	1.875	
Private institution		.035	.701	
Undergraduate enrollment in thousands		1.342	.405	***
Carnegie basic classification	Doctoral U-highest research activity	-2.135	1.152	
	Doctoral U-higher research activity	-.088	.657	
	Doctoral U-moderate research activity	-1.879	.983	
	Master's C&U-larger programs	.881	.657	
	Master's C&U-medium programs	1.563	.813	
	Master's C&U-smaller programs	2.552	.939	**
	Baccalaureate-arts & sciences	.084	1.402	
	Baccalaureate-diverse fields	-.339	1.047	
	Other Carnegie classification	-.640	2.240	

Notes: *$p < .05$, **$p < .01$, ***$p < .001$. All continuous variables were standardized before entry in the model so that unstandardized coefficients can be interpreted similar to effect sizes. Effect coding was used so that coefficients can be interpreted as compared to the average faculty member as opposed to a selected reference group.

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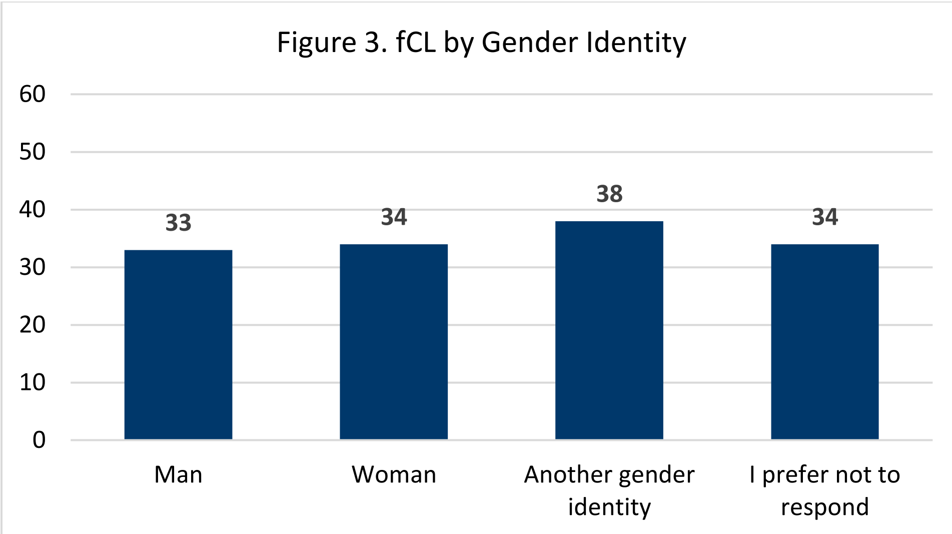

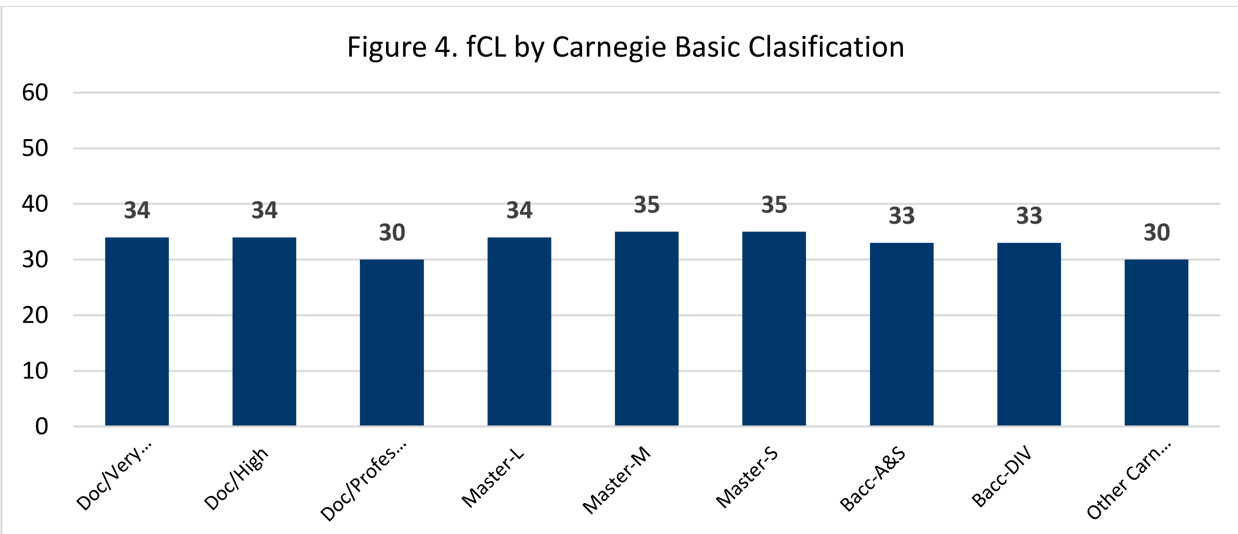

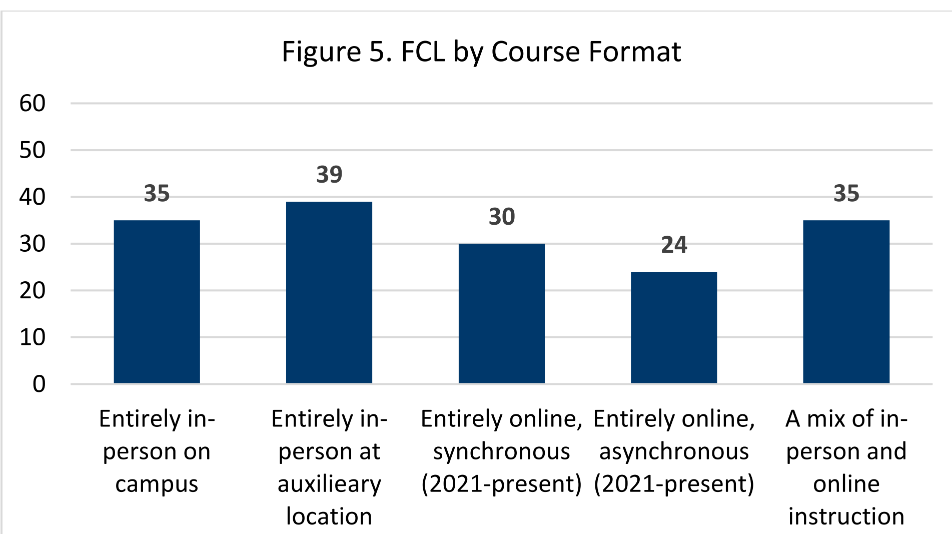

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