JOURNAL OF PEER LEARNING

A Three-Year Multi-Faculty Evaluation of 16 SI-PASS Schemes: Attendance Thresholds, Performance Gains, and Standardized Metrics

JOURNAL ARTICLE

VIRGINIA TECH PUBLISHING

NINON PUTTAERT
DOMINIQUE TOYE
FRANCE MÉLOT
CATHERINE COLAUX
ANNE-SOPHIE NYSSEN
DOMINIQUE VERPOORTEN

*Author affiliations can be found in the back matter of this article

ABSTRACT

The study scrutinizes 16 iterations of a regular SI-PASS program across four faculties in a Belgian university over a three-year span. The large dataset enables inter-year and inter-faculty comparisons, illuminating the program's convergent and varying traits. Throughout the study period, 78.32% of the targeted audience attended at least one session. Participants' reported motives for attending primarily relate to improved understanding of course material and enhanced social integration. A quasi-experimental design exhibits a significant improvement of the mark at the exam in 10 instances. This performance gain is conditioned by five, six, seven, or eight participations depending on the faculty and year concerned. The results are intentionally reported according to standard indicators defined at the European level for SI-PASS and supplemented with locally developed metrics found useful to support program monitoring and institutional accountability. The paper concludes on a call to SI-PASS hosts to share similarly precise and standardized descriptors to uplift international comparability and collective learning.

CORRESPONDING AUTHOR:
Ninon Puttaert
University of Liège, BE
ninon.puttaert@uliege.be

TO CITE THIS ARTICLE:
Puttaert, N., Toye, D., Mélot, F., Colaux, C., Nyssen, A.-S., & Verpoorten, D. (2026). A Three-Year Multi-Faculty Evaluation of 16 SI-PASS Schemes: Attendance Thresholds, Performance Gains, and Standardized Metrics. *Journal of Peer Learning*, *17*(1): 3, 1–22. https://doi.org/10.21061/jopl.143

Journal of Peer Learning
DOI: 10.21061/jopl.143

INTRODUCTION

The contemporary educational landscape is continuously evolving, shaped by factors ranging from technological change to growing attention to evidence-based pedagogy (Grubaugh et al., 2023). Within this context, peer-facilitated learning continues to attract sustained interest, with Supplemental Instruction–Peer Assisted Study Sessions (SI-PASS) standing out as one of the most widely adopted models. Developed in the 1970s at the University of Missouri–Kansas City (UMKC; Arendale, 2022), SI-PASS emerged in response to high failure and attrition rates in particularly challenging courses. The model's distinguishing feature includes the structured facilitation of collaborative learning guided by trained near-peers (known as leaders, the official name for the peers in charge of the groups of students) who have previously mastered the course content (International Center for Supplemental Instruction, 2025). Unlike other forms of peer tutoring (Topping, 1996), SI-PASS does not center on content delivery but rather on promoting synergic learning environments where students can discuss, interrogate, and internalize concepts. Therefore, the leader does not act as a surrogate teacher, but as a facilitator of meaningful conversations on the course material (Martin & Arendale, 1992). Beyond academic facilitation, a substantial body of research suggests that near-peers can promote belonging, normalize struggle, and ease the transition into university life, making SI-PASS leaders potential socio-academic anchors for first-year students (Clements et al., 2025; Le et al., 2024).

Evidence over the past decades suggests that SI-PASS not only enhances academic performance (Adebola et al., 2020; Ashwin, 2003; Hoiland et al., 2020) but also bolsters student confidence (Bronstein, 2007; Zhang & Bayley, 2019), critical thinking skills, and promotes a sense of community (Abegglen & Morris, 2015). Its effectiveness has been credited to its capacity to bridge the formal instruction received in lectures with the informal, yet structured, collaborative environment it offers (Dawson et al., 2014; Zamberlan & Wilson, 2015). Furthermore, being led by peers who have recently navigated the challenges of a course, SI-PASS sessions resonate with students, often demystifying complex topics and making them more approachable (Cheng & Walters, 2009; Malm et al., 2015). These outcomes do not arise from the model itself but from the mechanisms it enables: collaborative explanation, shared reasoning, and relational support embedded within structured peer interaction.

However, as with any pedagogical approach, the effectiveness of SI-PASS depends on contextual implementation. Detailed and transparent, documentation of SI-PASS practice is therefore essential not only for local program improvement but also for broader field progression (Martin & Hurley, 2005). For universities considering an SI-PASS pilot for the first time, or for seasoned SI-PASS practitioners, comprehensive contextualized accounts serve as blueprints or benchmarks, showcasing successes and difficulties and anchoring the model in real-world scenarios. This, in turn, enables better context-sensitive decisions through informed comparisons (Laming, 2004). Moreover, academia aspires to evidence-based practices (Slavin, 2007), which underscores the importance of collecting, disseminating, and putting into perspective sound descriptors and metrics from various support programs, including SI-PASS.

In response to these needs, the present study provides a systematic examination of SI-PASS at the University of Liège, using a common set of indicators to document participation, perceptions, performance, and cost in 16 program instances. This multi-year and multi-faculty design is intended as a concrete effort to establish a set of transparent, comparable descriptors that can inform both local monitoring and international dialogue about SI-PASS implementation. The study does so by combining existing standardized European SI-PASS indicators with locally developed metrics.

Two additional features align with this overarching aim. First, the study offers a three-year longitudinal perspective, which remains rare in the SI-PASS literature: neither Dawson et al.'s (2014) systematic review nor Zha et al.'s (2019) meta-analysis identified sustained, multi-cohort datasets, and Bengesai et al. (2023, p. 16) explicitly noted this gap. While some prior work has taken a longitudinal stance (for instance, Power & Dunphy, 2010), such studies have typically been confined to a single faculty (engineering) or to a narrower set of indicators. Malm et al. (2010), while stressing the importance of comparing contexts, restrict their own analysis to the same faculty of engineering. The present dataset keeps engineering in view but broadens the lens to include psychology, science, and bioengineering, thus enabling genuine cross-disciplinary insight. Secondly, the present study mobilizes multimodal data, defined as "data that originate from different data channels which are subjective and/or objective" (Järvelä et al., 2021, p. 2), whereas most existing SI-PASS studies rely primarily on unidimensional datasets (typically participation records, perception surveys, or performance scores). To address this limitation, the article adopts a "3P" approach (Verpoorten et al., 2021), combining participation (objective), perception (subjective), and performance (objective) data. In addition, it introduces a fourth P for price (objective), enabling a cost-efficiency analysis seldom included in SI-PASS research. Such triangulation strengthens internal validity and offers a concrete and straightforward pathway to practitioners, who can face an abundance of descriptive reports but a relative lack of systematic and integrated approaches.

Such a multi-year, multi-faculty, and multimodal design opens four avenues of inquiry (AOIs). Participation metrics (AOI 1) establish who attends SI-PASS sessions, how attendance varies across faculties and years, and whether group size aligns with established practice recommendations (e.g., "no more than 20 participants" [European Centre for SI-PASS, 2022, p. 11]). Perception data (AOI 2) explore what (de-)motivates students from engaging in peer learning and whether these patterns differ contextually. Performance analyses (AOI 3) test whether SI-PASS participation correlates with improved grades and how many sessions are required for effects to emerge. Price estimations (AOI 4) quantify the financial investment associated with these outcomes, allowing institutions to evaluate cost efficiency across cohorts. Where feasible, local data will be compared to the corresponding metrics reported in the Status Report for European SI/PASS/PAL Programmes (SRE). This document, which compiles information from 74 European universities (Malm et al., 2023), represents the most substantial effort to date in sharing standardized data on SI-PASS programs.

METHODOLOGY

SI-PASS SCHEMES AT ULiège

The University of Liège implements a regular SI-PASS model that follows as closely as possible the recommendations outlined by the European Centre for SI-PASS in the official Supervisor Training Manual (2022, pp. 11–12). These guidelines specify the structural and procedural elements required to ensure program integrity for all stakeholders. A detailed appraisal of ULiège's compliance with these guidelines is provided in Appendix 1. Across the faculties of Applied Sciences, Bioengineering, Psychology, and Sciences, SI-PASS is delivered weekly during the semester, typically over 13 weeks. Leaders complete a six-hour mandatory initial training and are offered refresher sessions, consistent with European Centre recommendations.

DATA SOURCES AND METHODS

The data was collected from all faculties who ran an SI-PASS program during the academic years 2019–2020, 2020–2021, and 2021–2022.

The first avenue of inquiry (AOI 1: Participation) was examined through attendance reports completed by SI-PASS leaders after each session. These reports recorded the session date and the identities (later pseudonymized) of all participants. Although leaders were instructed to submit a report for every meeting, occasional omissions occurred (these gaps are indicated in Table 1). Beyond functioning as a program quality indicator, participation data is a central analytic pillar of the study, given that SI-PASS effects are known to depend on exposure (Cheng & Walter, 2009). Without reliable participation metrics, performance outcomes (AOI 3) cannot be meaningfully interpreted.

To examine student perceptions (AOI 2), the study used an online exit survey administered between the final SI-PASS session and the exam in each targeted course. The questionnaire combined Likert-type items with two open-ended questions prompting students to articulate their motives for either participating or not participating in SI-PASS. Qualitative responses underwent thematic analysis following Braun and Clarke's (2006) reflexive approach, supported by an iterative coding process. Survey non-response was addressed by reporting response rates and conducting analyses on available data. Given the descriptive purpose of this AOI, missingness was not considered. Links between perceptions and performance were explored through the item "SI-PASS will significantly contribute to my success at the exam of the target course," which allowed integration of AOI 2 with AOI 3.

Performance data (AOI 3) were obtained from RADIUS (ULiège's unit in charge of administrative data management), which provided the official exam marks of all students enrolled in the targeted high-risk courses. Analyses were conducted using independent-samples *t*-tests to compare participants and non-participants, and Tukey HSD (honestly significant difference) post-hoc tests when multi-level attendance categories were compared. Because participation was voluntary, analyses are quasi-experimental and therefore interpreted cautiously in light of known selection biases. For this reason, results are discussed in alignment with participation intensity rather than simple binary contrasts.

Finally, the cost analyses (AOI 4) relied on aggregated financial data provided by the university's central accounting services. These data consisted of total annual expenditures associated with SI-PASS, including leader compensation, program coordination, and administrative support. While detailed cost breakdowns were not available, the global figures enabled the calculation of efficiency ratios by relating total expenditures to participation and performance indicators from AOIs 1–3, thereby integrating the fourth dimension into a broader evaluation of program effectiveness.

Taken together, these four data streams were triangulated to produce a multimodal evaluation of SI-PASS schemes at ULiège. This structure mirrors the "3P" framework proposed by Verpoorten et al. (2021) and extends it by introducing a fourth "P" dedicated to cost-efficiency, thereby addressing a gap in SI-PASS evaluation, as economic and cost-related indicators remain rarely reported in the literature (Bengesai et al., 2023; Dawson et al., 2014).

DATA TREATMENT AND ETHICAL CONSIDERATIONS

Quantitative analyses were conducted using JAMOVI (version 2.3). Depending on the variable structure, independent-samples *t*-tests, one-way ANOVAs (analysis of variance), Tukey HSD post-hoc tests, and chi-square tests were used. When cell sizes were insufficient to satisfy test assumptions (e.g., expected frequencies < 5), statistical tests were not performed; this is explicitly indicated in the corresponding tables. Qualitative analyses of open-ended survey responses were conducted using reflexive thematic analysis (Braun & Clarke, 2006). Missing or incomplete data (e.g., occasional missing attendance reports, non-response to perception survey items) were not imputed. Analyses were carried out on available data, and missingness rates are reported where relevant. Potential biases due to survey non-response or incomplete attendance logs are acknowledged in the limitations.

Data collection followed approval from the Ethics Committee of the Faculty of Psychology, Speech Therapy, and Education Sciences (protocol 2122–098, amendment approved on 10/13/2023). All data were pseudonymized prior to analysis: names, student IDs, and leader identifiers were removed and replaced with numerical codes. Given the risk of reidentification through data triangulation (attendance patterns by course by year), raw data cannot be made publicly available; only aggregated results are reported.

RESULTS

PARTICIPATION (AOI 1)

Table 1 provides a multi-year and multi-faculty overview of an SI-PASS program conducted in a French-speaking Belgian university. Bolded columns correspond to indicators already featured in the SRE and are therefore benchmark ready. Remaining columns present additional metrics that proved useful in the ULiège experience and whose relevance could be discussed

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FACULTY	**ACADEMIC YEAR AND SEMESTER**	**POTENTIAL PARTICI-PANTS**	**ACTUAL UNIQUE PARTICI-PANTS**	**% PARTICI-PATION**	***N* PARTICI-PATION**	**AVERAGE MEETINGS PER UNIQUE PARTICI-PANT**	***N* QUESTION-NAIRES (P/NP)**	***N* LEADERS**	**DILIGENT LEADERS**	***N* THEORE-TICAL MEETINGS/ THEORE-TICAL CONTACT HOURS**	***N* ACTUAL MEETINGS/ ESTIMATED CONTACT HOURS**	***N* THEORE-TICAL PARTICI-PATIONS**	**% ACTUAL MEETINGS ATTEN-DANCE**	**AVERAGE NUMBER OF STUDENTS PER MEETING**	**COSTS IN EUROS (€)**
Applied Sciences	19–20 S2	**288**	**108**	**37.5**	**487**	4.5	117 (95/22)	**16**	10	208	**100**	3,744	**13**	2.3	5,600
	20–21 S1	**315**	**215**	**68.3**	**1,146**	5.3	63 (57/6)	**15**	12	195	**144**	4,095	**28**	5.9	5,250
	20–21 S2	**358**	**164**	**45.8**	**825**	5.0	90 (74/16)	**10**	8	130	**99**	4,654	**17.7**	6.3	3,500
	21–22 S1	**222**	**208**	**93.7**	**1,130**	5.4	127 (111/16)	**13**	13	169	**155**	2,886	**39.2**	6.7	4,550
	21–22 S2	**368**	**65**	**17.7**	**489**	7.5	66 (66/0)	**17**	6	221	**70**	4,784	**10.2**	2.2	5,950
Bioengi-neering	19–20 S1	**276**	**113**	**40.9**	**515**	4.6	15 (15/0)	**16**	16	208	**161**	3,588	**14.4**	2.5	5,600
	20–21 S1	**238**	**140**	**58.8**	**655**	4.7	30 (24/6)	**19**	19	247	**212**	3,094	**21.2**	2.7	6,650
	20–21 S2	**260**	**90**	**34.6**	**327**	3.6	55 (36/19)	**13**	13	169	**142**	3,380	**9.7**	1.9	4,550
	21–22 S1	**208**	**92**	**44.2**	**480**	5.2	46 (37/9)	**15**	15	195	**160**	2,704	**17.8**	2.5	5,250
	21–22 S2	**218**	**89**	**40.8**	**311**	3.5	22 (22/0)	**10**	10	130	**119**	2,834	**11**	2.4	3,500
Psychology	20–21 S2	**293**	**247**	**84.3**	**1,777**	7.2	161 (129/32)	**36**	35	468	**377**	3,809	**46.7**	3.8	12,600
	21–22 S1	**303**	**253**	**83.5**	**1,292**	5.1	141 (100/41)	**33**	27	364	**293**	3,939	**32.8**	3.5	11,550
	21–22 S2	**64**	**28**	**43.8**	**246**	8.8	45 (45/0)	**6**	6	78	**72**	832	**29.6**	3.2	2,100
Sciences	20–21 S1	**45**	**15**	**33.3**	**102**	6.8	16 (14/2)	**3**	3	39	**39**	585	**17.4**	2.6	1,050
	21–22 S1	**68**	**35**	**51.5**	**170**	4.9	20 (18/2)	**3**	3	39	**39**	884	**19.2**	4.4	1,050
	21–22 S2	**171**	**64**	**37.4**	**408**	6.4	31 (31/0)	**9**	9	117	**106**	2,223	**18.4**	3.5	3,150
Total		3,695	1,926	52	10,360	5.5	1,045 (874/171)	229	205	2,977	2,218	48,035	21.6	3.5	81,900

Table 1 ULiège SI-PASS Multi-Year and Multi-Faculty Data According to Existing (Bold) and New Metrics.

Note. S1 and S2 stand for Semester 1 and Semester 2. For detailed column explanations, please refer to Appendix 2.

within SI-PASS community. Detailed explanations and calculation procedures for each indicator reported in Table 1 are provided in Appendix 2, and course details are in Appendix 3. The second semester of 2019–2020 and the first semester of 2020–2021 coincide with COVID-19 lockdown periods (March 18–May 3, 2020 and November 2–December 13, 2020; Belga, 2021), a conceptual factor that should be taken into account when interpreting participation patterns and program delivery conditions since SI-PASS schemes were maintained but transitioned to an online format.

PERCEPTION (AOI 2)

Reasons to Participate

Table 2 details the primary factors driving students to take part in the SI-PASS program. Among the 874 respondents who, over the three-year period considered, attended at least one session and completed the exit survey, 855 supplied 1,370 distinct motivations (an average of 1.57 reasons per respondent). Inductive analysis revealed eight incentives. The dominant motivator (61.82% of all statements) concerns a better grasp of course content ("1. Learn, understand, ask questions"), followed from afar (13.8%) by motives linked to social integration ("2. Socializing"). The third theme refers to the overall positive atmosphere of the sessions (6.13%, "3. Ambiance"). Appreciation of guidance from more experienced peers ranks fourth (5.62%, "4. Elder leaders"), just ahead of the incentive to stay up to date with lectures (4.67%, "5. Keeping pace"). Less frequently cited were the benefits of an alternative perspective on the material (4.31%, "6. Other approach"), the psycho-affective support offered by leaders (2.41%, "7. Emotional support"), and simple interest in trying the new peer learning scheme (1.24%, "8. Curiosity").

THEMES	APPLIED SCIENCES	BIO-ENGINEERING	PSYCHOLOGY	SCIENCES	TOTAL	X^2	p
1. Learn, understand, ask questions	359*	186*	220*	82*	847	11.01	.012
2. Socializing	73*	21*	91*	4*	189	34.40	< .001
3. Ambiance	27	19	27	11	84	3.88	.275
4. Elder leaders	27*	17*	20*	13*	77*	7.91	.048
5. Keeping pace	22	16	26	0	64	.	.
6. Other approach	34	12	9	4	59	.	.
7. Emotional support	5	5	22	1	33	.	.
8. Curiosity	6	4	7	0	17	.	.
Total	553	280	422	115	1,370		

Table 2 Frequency of Motivational Themes Mentioned by SI-PASS Students Across Faculties.

Note. Statistically significant differences ($p < 0.05$) in response frequencies for each theme between faculties using a chi-square test are marked by (*). Not all chi-square analyses were conducted because several cells in the table contain frequencies below 5, violating the assumptions required for χ^2 testing (Cochran, 1954).

Provided adequate statistical power, subsequent Bonferroni-Holm–corrected pairwise post-hoc comparisons were applied to pinpoint the group differences driving the overall effect (Table 2). Out of the four categories tested, three were statistically significant:

- Learn, understand, ask questions: $X^2(3) = 11.01$, $p = .012$. Faculty of Psychology mentions this theme less than other faculties.
- Socializing: $X^2(3) = 34.4$, $p < .001$. Faculty of Psychology mentions this theme more than other faculties.
- Elder leaders: $X^2(3) = 7.91$, $p = .048$. Faculty of Sciences mentions this theme more than other faculties.

Diving deeper into the theme repartition, additional χ^2 tests with Bonferroni-Holm correction were run to relate the two themes endorsement levels (perception data) to session attendance (participation data). "1. Learn, understand, ask questions" showed a strong attendance effect, $\chi^2(6) = 238.07$, $p < .001$, and "2. Socializing" yielded a similarly significant result: $\chi^2(6) = 56.74$, $p <$

DOI: 10.21061/jopl.143

.001. The pattern that emerges goes as follows: students who attended the most sessions (> 10) reported both themes more often than those who did not, except for the Bioengineering students, for which the pattern is inverted (Table 3). Reasons for this disciplinary specificity remain unclear.

	APPLIED SCIENCES			BIOENGINEERING			PSYCHOLOGY			SCIENCES			TOTAL		
Number of meetings	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10
Total *N* respondents	66	20	132	41	28	26	10	62	103	10	5	24	127	115	285
1. Learn, understand, ask questions	105	23	231	104	44	38	14	91	115	14	7	61	237	165	445
2. Socializing	18	3	52	11	5	5	2	35	54	1	1	2	32	44	113
Total	123	26	283	115	49	43	16	126	169	15	8	63	269	209	558

Table 3 Frequency of Motivational Themes Mentioned by SI-PASS Students From Each Faculty Depending on the Number of Meetings They Reported Participating In.

Note. Chi-square analyses were not conducted because several cells in the table contain frequencies below 5, violating the assumptions required for χ^2 testing (Cochran, 1954).

Reasons Not to Participate

To the question "This is/are the reason(s) why I did not get involved in the scheme," the 171 SI-PASS students who did not participate but took the exit survey mentioned a total of 144 units of meaning (Table 4), 38.19% invoked a "1. Lack of time" to attend, and 23.39% referred to a perceived "2. Useless[ness]" of the program. "3. Didn't know" relates to students who reported the fact that they were not informed about the date and place of the meetings (19.44%). Finally, the following themes (4–7) were reported less frequently: some students had "4. No interest" in participating in the program in Semester 2 after a first experience in Semester 1 (6.25%; e.g., "Lack of motivation" or "Not a priority in my tight schedule" from Bioengineering students). A few others reported having "5. Already tried" this way of learning without success (3.47%), and even fewer said that their leader never replied to their emails ("6. Absent leader," 2.78%), or that they felt too shy to show up ("7. Stress or timidity," 2.08%).

	APPLIED SCIENCES	BIOENGINEERING	PSYCHOLOGY	SCIENCES	TOTAL
1. Lack of time	23	15	13	4	55
2. Useless	12	14	11	3	40
3. Didn't know	4	1	22	1	28
4. No interest	2	6	1	0	9
5. Already tried	3	2	0	0	5
6. Absent leader	0	1	3	0	4
7. Stress or timidity	3	0	0	0	3
Total	47	39	50	8	144

Table 4 Frequency of Reasons for Non-Participation Mentioned by SI-PASS Students From Each Faculty.

Note. Chi-square analyses were not conducted because several cells in the table contain frequencies below 5, violating the assumptions required for χ^2 testing (Cochran, 1954).

Suggestions From Students

Table 5 summarizes the six themes that organize the 144 suggestions submitted by 205 students (each of whom attended at least one session) in response to the prompt: "For me to participate in more meetings it would have been necessary to…." Two largely logistical themes dominate. "1. Better schedule" covers 41.9% of comments and reflects the difficulty of fitting SI-PASS sessions into already crowded timetables: "If time slots allotted for the meetings could happen when we don't have classes, we wouldn't have to choose between the two" (Applied Sciences student). A closely related theme, "2. Better organization" (34.63%), highlights the need for earlier notice: "Leaders should send emails with all practical details in advance so that we can plan ahead" (Bioengineering student). "3. No Visio conference" (13.17%) concerns the compulsory online format imposed during the pandemic; many students found virtual sessions far less attractive than face-to-face meetings. This item is retained for completeness even though it pertains only to the two lockdown periods. Remaining themes are marginal. Students expressed a desire to meet with larger groups ("4. More participants," 7.32%), to have more sessions scheduled overall

("5. More meetings," 1.46%), and to receive clearer information about the program at the start of the semester ("6. More information," 1.46%). As one Psychology student noted, "Had we known what the program really was about, I am sure more students would have enrolled."

	APPLIED SCIENCES	BIOENGINEERING	PSYCHOLOGY	SCIENCES	TOTAL
1. Better schedule	30	24	25	7	86
2. Better organization	36	19	15	1	71
3. No Visio conference	9	6	10	2	27
4. More participants	9	2	2	2	15
5. More meetings	0	2	1	0	3
6. More information	2	0	1	0	3
Total	86	53	54	12	205

Table 5 Suggestions for More Participation Mentioned by SI-PASS Students From Each Faculty.

Note. Chi-square analyses were not conducted because several cells in the table contain frequencies below 5, violating the assumptions required for χ^2 testing (Cochran, 1954).

Performance Perception

Table 6 displays the views of 561 students on the statement "SI-PASS will significantly contribute to my success in the exam for the targeted course." Overall, 368 respondents (65.6%) agreed or strongly agreed. Agreement increased steadily with session attendance: the more meetings a student attended, the more strongly they endorsed the statement. This progression is especially clear, for the four faculties, in the "Total % respondents" row.

	APPLIED SCIENCES			BIOENGINEERING			PSYCHOLOGY			SCIENCES			TOTAL		
Number of meetings	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10	1–5	6–10	> 10
Total % respondents	18	62	74	38	61	85	52	71	91	25	57	76	27	66	81
Strongly agree	1	9	27	0	5	9	1	25	57	0	1	13	2	40	106
Agree	12	30	67	8	11	14	9	21	35	3	3	7	32	65	123
Neither disagree nor agree	32	16	19	10	7	4	4	10	8	4	2	5	50	35	36
Disagree	9	5	10	0	2	0	1	3	1	3	1	1	13	11	12
Strongly disagree	16	2	3	3	1	0	4	5	0	2	0	0	25	8	3
Total	70	62	126	21	26	27	19	64	101	12	7	26	122	159	280

Table 6 Frequency of Students' Perception of the Significant Contribution SI-PASS Will Have in Helping Them Pass the Exam From Each Faculty Depending on the Number of Meetings They Reported Participating In.

Note. Chi-square analyses were not conducted because several cells in the table contain frequencies below 5, violating the assumptions required for χ^2 testing (Cochran, 1954).

PERFORMANCE (AOI 3)

Table 7 compares the scores obtained by students who attended SI-PASS and those who did not with a *t*-test. Out of the 16 iterations, 10 are statistically significant, in favor of engagement in the program. Amongst the six nonsignificant ones, three schemes took place in the pandemic period. The discrepancy between the number of participating students (*n* SI-PASS) in Table 7 and the Actual Unique Participants shown in Table 1 (Column 4) occurs because some SI-PASS students did not sit the final exam (having withdrawn from the course, changed options, or similar) and were therefore excluded from the academic performance analysis. In Sciences, the first semesters of 20–21 (n = 13) and 21–22 (n = 30) yield no effect, whereas the second semester of 21–22 becomes significant when participation rises to n = 63, hinting at a sample-size threshold. Yet that explanation fails in Applied Sciences, where large samples (n = 108 in the second semester of 19–20; n = 190 in the first semester of 20–21) also produce null results.

Table 8 summarizes the minimum number of SI-PASS meetings needed to produce a statistically significant improvement in academic performance. Attendance thresholds at which group means begin to diverge significantly were calculated with a Tukey's HSD. A clear pattern emerges across contexts, faculties, years, and semesters: significant grade gains appear only after five to eight

FACULTY, ACADEMIC YEAR, AND SEMESTER	SI-PASS			NON-SI-PASS			*t*	*p*	COHEN'S *d*
	n	*M*	*SD*	*n*	*M*	*SD*			
Applied Sciences 19–20 S2	108	8.97	.45	176	8.27	.35	1.23	.22	.15
Applied Sciences 20–21 S1	190	7.13	.32	103	6.82	.42	0.58	.56	.07
Applied Sciences 20–21 S2	164	9.22	.47	122	7.10	.53	3.00	.003*	.36
Applied Sciences 21–22 S1	194	7.91	.34	101	6.07	.40	3.30	< .001**	.41
Applied Sciences 21–22 S2	63	11.86	.64	301	8.54	.32	4.35	< .001**	.60
Bioengineering 19–20 S1	108	8.64	.37	145	6.61	.32	4.14	< .001**	.53
Bioengineering 20–21 S1	127	9.77	.41	104	7.07	.42	4.60	< .001**	.61
Bioengineering 20–21 S2	75	9.83	.36	117	9.38	.28	0.98	.33	.15
Bioengineering 21–22 S1	88	8.52	.45	99	5.38	.45	4.93	< .001**	.72
Bioengineering 21–22 S2	82	6.49	.51	133	3.51	.31	5.28	< .001**	.74
Psychology 20–21 S2	175	11.90	.23	450	9.63	.19	6.65	< .001**	.59
Psychology 21–22 S1	220	7.86	.42	640	4.59	.21	7.68	< .001**	.60
Psychology 21–22 S2	24	6.17	.61	674	5.95	.14	0.30	.76	.06
Sciences 20–21 S1	13	7.15	.95	29	4.48	.82	1.5	.14	.50
Sciences 21–22 S1	30	6.10	.78	28	4.68	1.02	1.11	.27	.29
Sciences 21–22 S2	63	5.40	.68	93	3.42	.53	2.31	.022*	.38

Table 7 Number of Students, Mean Grades, Standard Deviation, *t*-Tests on Academic Performance for SI-PASS Students, and Size Effects (Lockdown Semesters are in Bold).

Note. S1 and S2 stand for Semester 1 and Semester 2. Statistical significance is indicated by $p < .05$ (*), and by $p < .001$ (**).

meetings. Bioengineering is the most consistent, with improvement evident after five sessions in every cohort to date. Psychology is also constant but has never shown significance below eight. Sciences contributes a single significant datapoint (also at eight), while Applied Sciences oscillates between six and eight.

FACULTY, ACADEMIC YEAR, AND SEMESTER	NO. MEETINGS	ESTIMATE	*STD*	*t*	*p*
Applied Sciences 19–20 S2*	.	.	.	.	.
Applied Sciences 20–21 S1*	.	.	.	.	.
Applied Sciences 20–21 S2	7	5.51	2.24	2.46	.015
Applied Sciences 21–22 S1	6	2.92	1.19	2.46	.015
Applied Sciences 21–22 S2	8	4.59	2.28	2.02	.045
Bioengineering 19–20 S1	5	3.13	1.25	2.50	.013
Bioengineering 20–21 S1	5	3.34	1.06	3.17	.002
Bioengineering 20–21 S2*	.	.	.	.	.
Bioengineering 21–22 S1	5	4.27	2.07	2.06	.042
Bioengineering 21–22 S2	5	4.99	1.26	3.96	< .001**
Psychology 20–21 S2	8	3.04	1.22	2.85	.044
Psychology 21–22 S1	8	5.13	2.41	2.12	.034
Psychology 21–22 S2*	.	.	.	.	.
Sciences 20–21 S1*	.	.	.	.	.
Sciences 21–22 S1*	.	.	.	.	.
Sciences 21–22 S2	8	8.70	1.90	4.58	< .001**

Table 8 Significant Threshold (Number of Meetings Required Calculated with Tukey Tests for SI-PASS Students).

Note. S1 and S2 stand for Semester 1 and Semester 2. The iterations marked by an (*) produced no significant *t*-test result in Table 7 and were therefore excluded from the subsequent Tukey HSD test. Statistical significance is indicated by $p < .05$ (*), and by $p < .001$ (**).

DOI: 10.21061/jopl.143

PRICE EXPENDITURES (AOI 4)

Over the past three years, and among the four faculties concerned, the total number of leaders added up to 229 (Table 1, Column 9). Leaders are formally employed by the university on 35-hour contracts and earn €10 per hour. Their wages constitute the program's principal expense (Table 1, Column 16), as it amounted to a total of €81,900 for the studied period and faculties. This sum only relates to the leaders' salary.

FACULTIES' STORYLINES

Across the four faculties, the results reveal four distinct SI-PASS "profiles" shaped by disciplinary culture, course affordances, student motivations, and local program history. These profiles help clarify patterns that remain partially concealed in aggregated multi-faculty analyses.

Applied Sciences shows the clearest pattern of academically driven participation. Students overwhelmingly cite mastery-oriented motives and attend strategically, with early-semester surges followed by steady attrition. Performance effects are present but inconsistent, appearing only when weekly attendance stabilizes above mid-semester levels. This cohort might be particularly sensitive to workload peaks, treating SI-PASS as an efficiency optimization tool: a resource to use when needed, not a community to join.

Bioengineering, by contrast, displays the most regular performance gains, with significant effects emerging after exactly five sessions in every cohort. Despite variations in participation rates, these students consistently report pragmatic motives (keeping pace, verifying understanding) that translate into stable attendance behaviors. The Bioengineering profile therefore represents the most "aligned" case, where disciplinary culture, student expectations, and SI-PASS mechanisms converge to produce predictable effects.

Psychology presents a markedly different narrative. Participation is high, but for notably different reasons: social and affective motives dominate (e.g., ambiance, emotional support, approachability of leaders). Students use SI-PASS not only for academic clarification but also as a space for belonging and reassurance. Performance gains emerge only after eight meetings, suggesting that the discipline's motivational profile enhances engagement but requires sustained exposure to translate into measurable grade improvements.

Sciences remains the smallest and least stable cohort. Participation is moderate and performances effects appear only once, in the semester where attendance increases substantially. Motivations tend to mirror those of Applied Sciences (academic clarification) but remain weaker in intensity. The small cohort sizes and the varied history of SI-PASS implementation in this faculty likely amplify fluctuations. Sciences therefore represents a "low-signal" context where conclusions must remain tentative.

DISCUSSION

This study applies straightforward calculations and descriptive statistics to a large dataset for three purposes: documenting a French-speaking European SI-PASS initiative on (non-) participation, perception, and performance; benchmarking the University of Liège results against the metrics established by the Status Report for European SI/PASS/PAL Programmes (SRE); and advancing the scholarly conversation on SI-PASS through inter-year and inter-faculty comparisons, with particular attention to comparability across implementation. By triangulating multi-year, multi-faculty, and multimodal data, the study also provides a structured response to widespread concern regarding the scarcity of rigorous, transparently analyzed SI-PASS datasets (Bengesai et al., 2023; Dawson et al., 2014), offering practitioners a model for cumulative, internationally comparable evidence.

PARTICIPATION

The multi-year coverage does not reveal any strong year or semester. The content-domain view is equally inconclusive: no single faculty emerges as a clear champion. Across the three-year dataset, levels of participation (Table 1, Column 5 or C5) fluctuate both within and between faculties, with one noticeable similarity: the lowest values usually occur in the second semester (except for Sciences 20–21, first semester). Two mechanisms may explain this "semester effect." First, new students, because they are diligent, curious, or unsure, tend to sample every optional activity during their first months on campus (especially when SI-PASS sessions appear in their timetables and feel quasi-compulsory) as part of their search for academic and social footing (Byl et al., 2022). This aligns with broader findings that first-year students often "over-engage" early on as they explore available support before refining their study strategies (Kift, 2015; Tinto, 2017). However, a first semester at university can prove disillusioning. A proportion of the students remain officially enrolled in the second semester (C3) while, for many reasons, they disengage from studies, shrinking the second semester pool. Conversely, the initial semester may also boost the self-confidence of other students enough to perceive SI-PASS as less necessary in the second semester.

Table 1 shows three outliers in C5: exceptionally high overall percentages of participation for the faculties of Applied Sciences in 21–22 first semester (93.7%) and of Psychology in both 20–21 second semester (84.3%) and 21–22 first semester (83.5%). Session logs (Appendix 4) suggest that these peaks were driven by unusually high first-week attendance followed by rapid attrition. Rather than a spread out "one-time visitor" phenomenon, a phrasing that overstates the exceptional nature of the pattern, it is more accurate to interpret this as a consistent behavioral tendency across cohorts, where students "vote with their feet": many attend the opening meeting to assess the perceived value of SI-PASS, and then they decide whether to continue. This early evaluative behavior aligns with broader findings that students strategically allocate time based on perceived usefulness, scheduling constraints, and competing demands (Entwistle & McCune, 2004). Attendance declines further across the semester (steadily, but predictably) though a small uptick around the ninth meeting appears, plausibly tied to pre-exam anxiety—an established pattern in peer learning and tutoring programs, where usage often spikes before major assessments (Arendale, 2022; Palmer et al., 2009). This pattern also intersects with the academic calendar: attendance often rises in the weeks preceding major assessments, and leaders typically adapt by shifting sessions toward revision-oriented collaborative problem-solving, revisiting past difficulties, and allowing students to steer the agenda toward exam-relevant concerns, a form of responsive facilitation also noted in large-scale PASS implementations (Chi et al., 2008). Such adjustments help preserve a key concern of SI-PASS philosophy (starting from participants' evolving needs, including during peak-stress periods) while simultaneously highlighting the risk of sessions being reduced to last-minute cramming, which does not align with SI-PASS intentions. Because of these twin declines (early attrition and gradual fading), ULiège's mean head count per session (C15) remains well below the SRE benchmark of 11 despite an unclear calculation process. Nonetheless, Liège matches the SRE figure of 51% (C4) of eligible students attending at least one session; a notable result given that Liège reports by semester while the SRE uses a full academic year. In short, roughly half of the cohort tries SI-PASS, and about one quarter attends half of the sessions. The sudden and sharp attendance drop in Psychology during the second semester of 21–22 may hint at a third factor influencing attendance: target course selection. That semester, SI-PASS adjusted course coverage to include one course that did not use exercises and instead favored rote learning, which may have reduced the perceived value of the SI-PASS method. This example illustrates a broader point: course selection interacts with SI-PASS mechanisms, and future work should disentangle semester effects from course effects.

A structural factor likely to reduce overall attendance figures could be the number of prescribed meetings. At ULiège, leaders were contractually asked to run 13 one-hour sessions per semester (SRE by comparison: "on average the leaders hold about 15 sessions during an academic year being 0.5–3 hours in length"), yet the declared total (C12) rarely matches the theoretical target (C11). Interviews and attendance sheets revealed that many leaders simply could not squeeze 13 meetings into 15 weeks and that some of them compensated by running longer sessions (sometimes counting for one only in the presence report). Column 11 thus raises not only a factual discrepancy but a broader feasibility issue: the alignment between institutional expectations

DOI: 10.21061/jopl.143

and actual operational constraints. After the study period, ULiège reduced the requirement to 12 sessions, a more realistic figure locally. Importantly, feasibility affects not only attendance but also institutional outcomes: if session scheduling becomes unrealistic, fewer meetings occur, mechanisms weaken, and SI-PASS cannot fully contribute to early academic engagement, one of the strongest predictors of retention and progression (Kuh et al., 2006; Tinto, 1997). This link is consistent with the primary goals identified across European SI-PASS programs, where improved retention and smoother transition into higher education are consistently reported as central motivations and outcomes (e.g., Bournemouth University, Queen Margaret University, and University of Bath as displayed in the SRE). Ensuring that the program remains operationally feasible is therefore a prerequisite not only for attendance, but also for securing the very institutional benefits (progression, reduced dropout, and academic adjustment) that justify SI-PASS investment.

Another consideration about attendance figures is that they might be higher than in Table 1, when attention is given to the number of leaders (C9) and diligent leaders (C10). Taken together, these columns reflect the difficulty of gathering exact data: six of 16 iterations lack attendance sheets (C10 < C9), meaning that some leaders, despite contracts and reminders, do not provide attendance data. This mirrors a well-documented challenge in educational field research, where missing administrative records introduce uncertainty and may lead to underestimation of participation metrics (Bowen et al., 2005). When meetings are not logged in the shared file as required, it remains unclear whether they took place or were not organized. Nonetheless, most leaders are generally diligent in reporting attendance, and the number of missing records remains limited. If we go from students' attendance to "faculty attendance" in the program, C2 shows that in Liège, the number of faculties implementing SI-PASS has grown from one to four, but that this number has not changed since.

Regarding the link between pandemic and attendance, the COVID-19 pandemic sometimes boosted participation (e.g., Faculty of Bioengineering in the first semester of 20–21 compared to the second semester) and sometimes did not (e.g., Faculty of Applied Sciences in the first semester of 20–21 compared to the second semester). These are the only two faculties for which both semesters of the same year are present and thus allow for comparison. However, this measure could be considered a confounded variable with the previously mentioned pattern of the first semester being better attended than the second regardless of the year and faculty. Therefore, conclusions regarding a possible link between the pandemic and attendance ought to be nuanced. Even Malm et al. (2022) highlight several discrepancies between COVID sessions and regular ones, such as the complexity of monitoring engagement during online meetings and the increased complexity of the leaders' tasks. These findings align with broader research on pandemic-era learning, which shows both increased flexibility and reduced interactional quality in online peer-learning environments (Baber, 2021). Data from this specific time were presented for the sake of exactitude and relatedness to other work examining virtual meetings (Huijser et al., 2008; Watts et al., 2015).

PERCEPTION

The primary aim of SI-PASS is to help students master demanding courses, and participants' feedback confirms that it is viewed as an academic integration program. The dominant theme ("Better understanding of course materials" and "Learn, understand, and ask questions," Table 2) echoes the foundational SI-PASS objective of supporting mastery in high-risk courses, corresponding with the SRE's core focus on grades and graduation. Motivations such as "Keeping pace" reflect the alignment between SI-PASS scheduling and lecture progression. Social motives, although secondary, are consistent and meaningful: "Socializing," "Ambiance," and "Emotional support" indicate psychosocial gains that arise organically through the model's collaborative, conversational structure. The "Elder leader" motive bridges academic and affective domains: students appreciate both the approachability ("Helped me deal with my growing stress") of near-peers and their ability to demystify complex material ("Easier to ask questions to someone like us"). As seen in Table 2, faculty patterns are almost caricatural: Sciences, Applied Sciences, and Bioengineering provide the largest share of performance-oriented motives, whereas Psychology contributes most of the social ones. Finally, higher attendance correlates with a much stronger appreciation of both academic and social dimensions (Table 6); occasional visitors notice the benefits but not enough to join the core group.

If students are to attend enough SI-PASS sessions to internalize the program's benefits (Table 6), logistics become a primary enabler or impediment, as highlighted in Table 5. At the faculty level, embedding SI-PASS in undisturbed timetables prevents competition with other academic activities. At the leaders' level, scheduling sessions well in advance, establishing routines in time and venue, and (as they are contractually expected) sending a weekly reminder to every student in their group is critical to attendance. Yet the data still contain complains about missing or late information. Until these basics are secured, overall participation (C5) and average attendance per session (C15) are unlikely to rise.

More broadly, these constraints mirror findings from large-scale peer-support programs internationally. For instance, the Queensland University of Technology's STIMulate initiative demonstrates how robust scheduling infrastructure (e.g., daily drop-in availability, dedicated service spaces, and accessible volunteer facilitators) helps maintain accessibility and mitigate organizational friction in peer learning services (Wilson et al., 2017). Meanwhile, peer support interventions in contexts like ours have encountered repeated challenges in sustainability and scaling when operational constraints (e.g., time, supervision, administration) were not addressed, even when student demand was present (Osborn et al., 2022).

PERFORMANCE

Overall, the statistical results situate the ULiège SI-PASS experience within the longstanding positive pattern well summarized in this statement from the university, which is the cradle of the program: "The data overwhelmingly show that students who attend SI on a regular basis do substantially better than students who scarcely attend or don't attend at all. This is true of each semester, and for the last 40 years at UMKC and internationally" (European Centre for SI-PASS, 2022, p. 21). Ten of the 16 iterations tested at Liège in Table 7 confirm this statement; six, however, do not. These nonsignificant cases are scattered across faculties and semesters, suggesting multiple interacting (and still unexplained) factors: sample size, cohort engagement, exam formats, online delivery constraints, varying levels of leader facilitation fidelity, degree of academic staff endorsement, and so on. Half of the null iterations coincide with COVID-19 semesters, when sessions moved online. The data show both lower attendance and weaker appreciation of the online format, reinforcing the association developed throughout this article between participation, perception, and performance. Untangling the interplay of cohort size and GPA at baseline, delivery mode, instructional context, and program fidelity will require targeted future research. Identifying why some cohorts gain while others do not is now the key to refining SI-PASS implementation and maximizing its academic impact. However, clear a pattern emerges: across faculties, years, and semesters, significant grade gains appear only after five to eight meetings. These exposure thresholds may serve as additional meaningful standardized metrics for future cross-institutional comparison, and they align with prior work showing that deeper collaborative mechanisms require repeated participation to stabilize (Gilman, 2025; Rokusek et al., 2022).

PRICE EXPENDITURES

The current scholarship encourages researchers to question the efficiency of student support programs (Kraft, 2020). The issue of cost-effectiveness is nowadays especially pressing in French-speaking Belgium, where ARES, the overarching coordination of higher education, now requires institutions not only to supply evidence of impact but also to relate that evidence to program costs. Such financial data are still unusual: besides the wage figure reported here in Column 16, one of the few detailed estimates appears in Dekker et al.'s (2023) recent study: "The time spent by the SI leaders, the involved coordinators, trainers, project manager, and scheduler, times their respective salaries totaled €98 400. Divided by the 255 students who were granted access to the SI sessions is €385.88 per student" (pp. 5–6). Applying the same formula (C16/C4) to Liège yields a cost of €42 per participant, although it covers only the leaders' salaries and excludes overheads such as supervision and administration. Even with those omissions, the figure compares favorably with the annual salary of a full-time teaching assistant. Beyond direct costs, SI-PASS may contribute to institutional outcomes of major relevance: retention, progression, and cumulative credit accumulation. Research consistently shows that early academic engagement and belonging predict persistence into the second year (Kift, 2015; Tinto, 2012), and SI-PASS' combination of academic support and peer integration is precisely aligned with mechanisms known to reduce dropout risk. Thus, cost-benefit analyses should consider long-term institutional savings as well as short-term instructional costs.

PERSPECTIVES: LEVERAGING METRICS FOR ACTION

The metric set developed offers a roadmap for action at three complementary levels. Locally, faculties can identify where attendance thresholds fall short, where perception of value declines, or where cost per participant increases. This mirrors the emphasis in implementation science on using "local evidence loops" to support continuous program refinement through context-specific data (Fixsen et al., 2010). Institutionally, shared metrics enable cross-faculty comparison, highlight disciplinary specificities, support evidence-based decision-making for resource allocation, and demonstrate accountability to ARES and other external bodies—an approach consistent with broader higher-education governance trends emphasizing transparency, equity, and data-driven quality enhancement (Tight, 2018). Internationally, aligning local metrics with the SRE strengthens global comparability and contributes to the collective development of SI-PASS research. The additional descriptors proposed here, such as the five-to-eight-session effectiveness threshold, the cost-per-participant estimates, and the cross-modal triangulation, extend the common vocabulary and provide building blocks for cross-institutional studies (e.g., participation, perception, performance, cost-benefit studies, international comparisons linking perception patterns to academic outcomes, and controlled trials that vary variables to test their causal impact). Such work would deepen theoretical understanding in joint research while feeding evidence-based refinements back into practice. Ultimately, these metrics and their triangulations are therefore not ends in themselves; they are decision tools. Used iteratively, shared and discussed to increase knowledge, they can steer continuous improvement locally, inform policy choices centrally, and enrich collective knowledge globally. As the founder of SI-PASS already anticipated: "Collect, analyze, and report data each semester. Credibility relies on careful and systematic program evaluation" (Martin & Hurley, 2005, p. 319).

LIMITATIONS

Several limitations qualify these findings. Data incompleteness is the first: six of the 16 iterations lack attendance sheets (C10 < C9). Although most leaders submitted records, a few did not, so the counts in Table 1 are almost certainly underestimates (although a slight counter effect of over-reporting cannot be totally ruled out despite trust and follow-up). Data gaps of this type are commonly reported in program-monitoring literature, where fidelity records and attendance logs are often incomplete or uneven (Carroll et al., 2007). Exit-survey participation was modest for both attendees and non-attendees, introducing possible non-response bias in the perception results (Porter & Whitcomb, 2005). Moreover, data from the most recent semester in Applied Sciences is incomplete due to unexplained lost records. Secondly, sample sizes are sometimes small, reducing statistical power despite three-year aggregation. This limitation is typical of voluntary academic support programs, where participation variability constrains effect detection (Slavin, 2008). Third, although three years exceed the span of most published SI-PASS studies, they capture only the early institutionalization phase. Ongoing longitudinal tracking is needed to determine whether attendance patterns and effects levels continue to fluctuate or reach a point at which further measurement adds little value. Fourth, SI-PASS is voluntary. Compulsory participation would solve the small-sample problem and could streamline logistics for faculties, yet it might harm the program's ethos, which remains anchored on the side of self-directed, mastery-oriented learning. Finally, comparisons with other institutions remain constrained by variation in data availability and reporting practices—precisely the gap this study aims to help close. Cross-institutional inconsistencies in measurement and reporting have been identified as a major barrier to cumulative SI-PASS research (Zha et al., 2019), underscoring the need for harmonized metrics such as those proposed here.

CONCLUSION

This article aimed not only to document SI-PASS implementation at ULiège but also to illustrate how multimodal, multi-year, multi-faculty evaluation can guide program development, strengthen cross-institutional comparability, and support evidence-based decision-making in the post-pandemic landscape. Its intended impact extends beyond local evaluation: it offers practitioners and researchers a concrete model of how to integrate diverse data streams into a coherent analytic narrative capable of informing both policy and practice across three years, four faculties, and four complementary data streams. This study provides the first integrated portrait of SI-PASS implementation at the University of Liège. By combining participation, perception, performance, and price data within a common analytical grid, it demonstrates that the effectiveness of peer learning schemes does not arise from the model alone but from the contextual conditions that allow it to operate: timetabling, exposure, facilitation quality, and more.

The results reaffirm the longstanding international finding that sustained participation is associated with improved performance, yet they also illustrate that one size does not fit all. Faculties differ in their attendance patterns, threshold effects, and perception profiles; cohorts diverge in their responsiveness; and pandemic constraints further exposed the contextual sensitivity of SI-PASS. This variability should not be read as inconsistency but as a reminder that SI-PASS is better understood as a framework that must be adapted, not simply adopted. At a local level, the metrics generated here offer ULiège an evidence-based foundation for iterative improvement. They allow faculties to identify logistical bottlenecks, recalibrate facilitation support, and align resource allocation with documented needs. The dataset also contributes to a wider institutional conversation about student participation. At a broader level, the study's contribution lies in positioning these local findings within the emerging European movement toward comparable, cumulative SI-PASS knowledge. By using the indicators developed in the Status Report for European SI/PASS/PAL Programmes (SRE) and proposing additional metrics (such as the five-to-eight-session exposure threshold and per-participant cost), the study encourages institutions to move from isolated case reports to shared frameworks. Such alignment enables cross-institutional benchmarking, supports the identification of context-specific adaptations, and may help program champions to make more informed decisions about where SI-PASS fits within their own pedagogical ecosystems.

Ultimately, the findings point to a simple but important conclusion: SI-PASS is effective when local conditions enable it to be. The challenge for universities, whether in Liège or elsewhere, is not to assume universal applicability, but to identify the structural, cultural, and disciplinary conditions under which peer learning can genuinely flourish. Meeting this challenge requires academic leadership, evidence-informed program design, and a commitment to ongoing evaluation and responsive monitoring. In this light, the present study offers both a mirror for local reflection and an invitation to the international SI-PASS community to collaborate in building more multi-faceted, nuanced, and transferable knowledge about the program.

APPENDIX 1

COMPARATIVE TABLE BETWEEN THE ESSENTIAL ELEMENTS FOR A CERTIFIED SI-PASS PROGRAM AND THE QUALITY OF ITS IMPLEMENTATION AT ULiège

Appendix 1 presents a comparative table that juxtaposes the Essential Elements defining the integrity of certified SI-PASS programs with the corresponding evidence and arguments documenting how these requirements are implemented at the University of Liège. By placing the normative framework alongside concrete institutional practices, the table makes explicit the degree of alignment between official standards and their operationalization in the local context. It thereby provides a transparent compliance overview and clarifies to what extent program integrity is ensured at ULiège.

DOI: 10.21061/jopl.143

ESSENTIAL ELEMENTS FOR CERTIFIED SI-PASS PROGRAMS		ULiège IMPLEMENTATION	
*SI-PASS **programs** are…*			
1.	managed by a certified SI-PASS Supervisor who has undertaken training with a Certified Trainer based at a National or Regional Centre (e.g., European Centre at Lund University).	1.	In Liège, two certified supervisors monitor all aspects of the program.
2.	student-driven with participants determining the content of SI-PASS sessions facilitated by SI-PASS leaders.	2.	Leaders' training puts strong emphasis on this aspect. Field observations confirm its good implementation.
3.	monitored and evaluated through attendance data, student feedback, and students' final marks. Outcomes are reported to stakeholders where appropriate.	3.	This very article demonstrates compliance to this criterion.
*SI-PASS **sessions** are…*			
4.	small supplementary study groups in which there are no more than 20 participants, with groups of 8–12 being best practice.	4.	Initial groups do not exceed 15 participants. Natural attrition reduces this number.
5.	voluntary and are open to all students enrolled in the unit, subject, or course.	5.	All students enrolled in the targeted course are invited to participate.
6.	not linked to the awarding of marks for the unit, subject, or course.	6.	Instructors of the targeted courses do not know who takes part.
7.	facilitated by a student who is at least one year beyond the level of the target unit in their own studies and has successfully completed the unit they are supporting.	7.	Leaders are second- or third-year students selected because they are: a) willing to help peers, b) successful in the targeted course, and c) globally successful in their studies.
8.	designed to supplement existing learning opportunities open to all students, such as lectures, tutorials, practicals, etc.	8.	Leaders are trained and supported in the management of sessions that materialize the unique tenets of SI-PASS. The seminal exhortation of "not to teach" is the repeated motto of the program, so that it keeps its special space in the array of help for academic success. Leaders must also keep in mind the distinctive boundaries of their role, which does not equate with being a faculty or a teaching assistant.
9.	aligned with unit, subject, or course content. SI-PASS leaders plan regular sessions and related activities based on the previous week's lecture(s) or core content.	9.	Each session takes place within the week following each course and is dedicated to the content covered in this course.
10.	meant to integrate both course content and related study skills.	10.	Leaders are trained to welcome both content- and method-related issues.
11.	active, positive, collaborative peer learning environments.	11.	These SI-PASS key features are strongly highlighted during the initial leaders' training and are recalled as often as possible.
12.	not directly connected with assessable tasks (i.e., anything that has marks attached, such as homework or assignments).	12.	The targeted courses do not organize marked tasks before the exam.
13.	monitored through taking attendance and having an SI-PASS representative regularly observe leaders and provide them with guidance and feedback for ongoing improvement.	13.	Two or three voluntary debriefings as well as one compulsory field observation per leader usually takes place during the semester. Leaders experiencing difficulties must report to the supervisors. All leaders fill in an online attendance registry after every meeting.
14.	attached to classes or disciplines, never to students, and are non-remedial in their approach.	14.	The program targets "high risk courses and not high-risk students." The targeted courses are selected by faculties among those recording high exam fail rates (e.g., at the psychostatistics exam in the Faculty of Psychology in 2023, only 14% of all students passed the course in January).

(Contd.)

ESSENTIAL ELEMENTS FOR CERTIFIED SI-PASS PROGRAMS	ULiège IMPLEMENTATION
SI-PASS ***supervisors****…*	
15. and senior leaders, mentors, and coordinators model SI-PASS principles and facilitation skills both in training and in ongoing professional learning in order to inform best practice. The same is true of other locally specified roles, such as mentors (senior leaders) and coordinators.	15. Initial and ongoing training is delivered by certified and seasoned supervisors who themselves practice SI-PASS principles and spirit. They regularly attend supervisors' "master classes" offered by the European Center. There are unfortunately no senior leaders at ULiège.
16. work collaboratively with academic colleagues to ensure SI-PASS is linked appropriately into the course schedule and content.	16. Supervisors have a contact person in each faculty, helping to manage the practical aspects of the program. Low contact with teachers of the targeted courses is a weakness at ULiège.
SI-PASS ***leaders and facilitators*** *are…*	
17. recognized and rewarded (e.g., some institutions pay their leaders while others offer academic credit or other appropriate compensation).	17. Leaders sign a contract with the university and are financially compensated for their role with the official student job salary.
18. provided with an initial minimum two-day training program and ongoing professional learning.	18. An initial one-day training is mandatory for all leaders (new and confirmed). Ongoing training opportunities called "mini cursus" are provided as well as a compulsory reflective exercise.
19. provided with resources to support them in their role.	19. An online platform is being created to provide leaders with multiple resources: course-related material, translated SI-PASS cards, techniques covered in mini-cursus, FAQs answering all kinds of questions received over the last four years, and SI-PASS literature.
20. instructed not to reteach the course material. They are specifically trained to develop students as independent learners and to ensure that SI-PASS sessions do not become another lecture or a replacement for tutorials.	20. This aspect is the key point during their training, and they are constantly reminded of it. The field observations confirm that this notion is well rooted in leaders' practice.
21. in regular contact with course teaching team so they are knowledgeable about what is occurring in the course to ensure that the following aims are met: leaders are modeling good study behavior, marketing the purpose and benefits of SI-PASS, remaining up-to-date with subject content and relevant unit information to support preparation, retaining awareness of difficult content, and providing feedback to inform the course teaching team.	21. Some teachers have sometimes provided agendas for their courses. The online space of the course is open, on university LMS, to leaders. To be knowledgeable, the leaders rely on their own notes, handbook, and exercises. They are officially paid for one hour to prepare each meeting (e.g., content revision, activity planning). Contact between leaders and supervisors with teachers is unfortunately scarce, even in the sharing of the collected feedback.

APPENDIX 2

DETAILED EXPLANATIONS FOR EACH COLUMN OF TABLE 1

Appendix 2 provides detailed explanations for each column (C) presented in Table 1. By clarifying the meaning, calculation procedures, and interpretation of each indicator, this appendix ensures transparency and facilitates the use of these metrics for program monitoring and cross-institutional comparison.

- **Column 1 "Faculty"**: Four faculties implemented an SI-PASS scheme in a single course each semester during the considered period. The targeted courses remained consistent for three years in the faculties of Applied Sciences, Bioengineering, and Sciences. In Psychology, three different courses were targeted (Appendix 4).
- **Column 2 "Academic year and semester"**: As can be seen, the four faculties joined the program at different times.

- **Column 3 "Potential participants"**: All students officially registered in the target courses were informed about SI-PASS and invited to participate, although actual participation was voluntary.
- **Column 4 "Actual unique participants"**: The number of unique participants, defined as students whose names appeared at least once in the attendance reports submitted by leaders.
- **Column 5 "% Participation"**: The ratio of unique participants to potential participants (C4/C3). The percentage indicates the proportion of enrolled students who took part in SI-PASS at least once.
- **Column 6 "Number of participations"**: The total number of attendances recorded in the available attendance reports. Detailed records of attendance per meeting are provided in Appendix 3.
- **Column 7 "Average number of meetings per unique participant"**: This ratio of C6/C4 provides insight into the participation pattern, indicating whether a small number of students attended many sessions or a larger number of students attended sporadically.
- **Column 8 "Number of questionnaires"**: The number of exit surveys received, broken down into those from participants in at least one meeting (P) and from students who did not attend any meeting (NP).
- **Column 9 "Number of leaders"**: At ULiège, the number of leaders depends on the number of students enrolled in the targeted difficult courses, following the recommended ratio of "one leader for every 15–20 students." The slight flexibility is allowed based on whether the program is offered only to newcomers or also to repeating students.
- **Column 10 "Diligent leaders"**: Completing attendance reports is a contractual obligation for leaders, as part of their 35-hour contract with the university. The time allocated for creating these attendance lists is included in the leaders' workload. This column counts the number of leaders who submitted attendance reports, also showing, when compared to C9, that some leaders did not return any attendance lists and therefore failed to comply despite the obligation and reminders.
- **Column 11 "Theoretical Number of meetings/Theoretical contact hours"**: Over the considered period, in all faculties, leaders were expected to organize 13 meetings per semester. This column (C9 * 13) reflects the theoretical number of meetings, acknowledging that not all meetings may have occurred. Since each of the 13 meetings organized by leaders was supposed to last one hour, this column also represents the theoretical contact hours, although it may not always reflect the actual length of the meetings.
- **Column 12 "Actual Number of meetings/Estimated contact hours"**: The actual number of meetings organized by SI-PASS leaders, based on the attendance reports submitted. This can only be calculated for diligent leaders (C10). Moreover, each of the 13 meetings organized by leaders was supposed to last one hour. This column therefore also represents the estimated contact hours, although it may not always reflect the actual length of the meetings.
- **Column 13 "Number of theoretical participations"**: The number of participations if all potential participants attended all meetings (C3 * 13 meetings organized).
- **Column 14 "% Actual meetings attendance"**: The percentage of effective participation ("occupied seats"), calculated as the "Number of participations" (C6) divided by the "Number of theoretical participations" (C13).
- **Column 15 "Average number of students per meeting"**: The "Number of participations" divided by the number of actual meetings (C6/C12).
- **Column 16 "Costs"**: The total wage expenditure for the recruited leaders (C9 * 35 * 10) in euros (€).

APPENDIX 3

COURSES TARGETED BY SI-PASS

Applied Sciences

- First semester: Physics 1 (Pr. H. Caps)
  https://www.programmes.uliege.be/cocoon/20262027/cours/PHYS2020-1.html
- Second semester: Physics 2 (Pr. H. Caps)
  https://www.programmes.uliege.be/cocoon/20262027/cours/PHYS2021-1.html

Bioengineering

- First semester: General Physics: Thermodynamics (Pr. B. Longdoz and Pr. G. Lumay)
  https://www.programmes.uliege.be/archives/20242025/cocoon/cours/PHYS3024-1.html
- Second semester: General Physics: Particles Mechanics (Pr. B. Longdoz)
  https://www.programmes.uliege.be/cocoon/20262027/en/cours/RREM0010-1.html

Psychology

- Second semester 2020–2021: Social Psychology (Pr. B. Dardenne)
  https://www.programmes.uliege.be/cocoon/20262027/cours/PSYC0017-1.html
- First semester 2021–2022: Descriptive and Inferential Psychostatistics (Pr. E. Quertemont)
  https://www.programmes.uliege.be/cocoon/20262027/cours/PSYC5895-1.html
- Second semester 2021–2022: Physiology of the Nervous System (Pr. P. Kohl)
  https://www.programmes.uliege.be/cocoon/20262027/cours/PHYL0646-2.html

Sciences

- First semester: Fundamental Analysis, Part 1 (Prof. S. Nicolay)
  https://www.programmes.uliege.be/cocoon/20262027/cours/MATH0071-1.html
- Second semester: Fundamental Analysis, Part 2 (Pr. S. Nicolay)
  https://www.programmes.uliege.be/cocoon/20262027/cours/MATH0072-1.html

APPENDIX 4

DETAILED TABLE OF PARTICIPATIONS IN EACH MEETING (M)

FACULTY	ACADEMIC YEAR AND SEMESTER	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	TOTAL
Applied Sciences	19–20 S2	92	59	57	51	47	43	40	30	30	11	9	8	10	487
	20–21 S1	158	123	117	113	102	108	97	90	77	72	57	24	8	1,146
	20–21 S2	135	98	85	80	59	62	52	54	50	50	41	34	25	825
	21–22 S1	167	122	110	98	96	74	84	78	84	80	80	37	20	1,130
	21–22 S2	61	55	49	44	38	41	35	37	32	28	30	21	18	489
Bioengineering	19–20 S1	31	64	72	61	55	54	15	33	37	34	36	20	3	515
	20–21 S1	98	69	72	69	37	40	48	51	47	47	37	35	5	655
	20–21 S2	54	39	39	25	25	27	13	19	22	18	16	14	16	327
	21–22 S1	34	39	59	48	47	24	24	31	38	46	28	37	25	480
	21–22 S2	60	48	26	31	33	20	13	3	14	12	22	18	11	311
Psychology	20–21 S2	213	192	181	164	168	156	149	138	145	139	95	37	.	1,777
	21–22 S1	166	142	144	142	110	88	90	75	80	72	68	65	50	1,292
	21–22 S2	22	20	20	21	22	21	20	16	20	22	20	16	6	246
Sciences	20–21 S1	12	11	11	8	8	8	8	7	7	6	6	6	4	102
	21–22 S1	30	20	17	9	12	11	12	7	12	9	12	10	9	170
	21–22 S2	53	48	38	33	36	38	34	28	35	25	17	9	14	408
Total		1,386	1,149	1,097	997	895	815	734	697	730	671	574	391	224	10,360

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Ninon Puttaert orcid.org/0000-0001-6363-0497
University of Liège, BE

Dominique Toye orcid.org/0000-0003-1368-212X
ULiège, BE

France Mélot
ULiège, BE

Catherine Colaux orcid.org/0000-0001-7991-5702
ULiège, BE

Anne-Sophie Nyssen
ULiège, BE

Dominique Verpoorten orcid.org/0000-0002-5604-4833
ULiège, BE

REFERENCES

Abegglen, S., & **Morris, A. M.** (2015). Peer-led learning: Challenges and opportunities. *Investigations in University Teaching and Learning*, *10*, 77–81.

Adebola, O. O., Tsotetsi, C. T., & **Omodan, B. I.** (2020). Enhancing students' academic performance in university system: The perspective of Supplemental Instruction. *International Journal of Learning, Teaching and Educational Research*, *19*(5), 217–230. https://doi.org/10.26803/ijlter.19.5.13

Arendale, D. R. (2022). History of Supplemental Instruction-PASS: The first 25 years. Unpublished manuscript, Department of Curriculum and Instruction, University of Minnesota, Minneapolis, MN. https://conservancy.umn.edu/bitstreams/c2c83d94-677e-4451-bfcc-153c64ceec98/download

Ashwin, P. (2003). Peer facilitation and how it contributes to the development of a more social view of learning. *Research in Post-Compulsory Education*, *8*(1), 005–018. https://doi.org/10.1080/13596740300200137

Baber, H. (2021). Modelling the acceptance of e-learning during the pandemic of COVID-19-A study of South Korea. *The International Journal of Management Education*, *19*(2), 100503. https://doi.org/10.1016/j.ijme.2021.100503

Belga. (2021, February 26). *Un an de confinement: Quelques dates qui ont marqué la vie des belges (chronologie)*. Le Spécialiste, l'Actualité des Médecins Spécialistes. https://www.lespecialiste.be/fr/actualites/un-an-de-confinement-quelques-dates-qui-ont-marque-la-vie-des-belges-chronologie.html#:~:text=Une%20première%20depuis%20la%20Seconde,éviter%20la%20diffusion%20du%20coronavirus

Bengesai, A. V., Amusa, L. B., & **Dhunpath, R.** (2023). A meta-analysis on the effect of formal peer learning approaches on course performance in higher education. *Cogent Education*, *10*(1), 2203990. https://doi.org/10.1080/2331186X.2023.2203990

Bowen, E., Price, T., Lloyd, S., & **Thomas, S.** (2005). Improving the quantity and quality of attendance data to enhance student retention. *Journal of Further and Higher Education*, *29*(4), 375–385. https://doi.org/10.1080/03098770500353714

Braun, V., & **Clarke, V.** (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bronstein, S. B. (2007). *Supplemental Instruction: Supporting persistence in barrier courses*. [Doctoral dissertation, University of Massachusetts Amherst]. ScholarWorks. https://doi.org/10.7275/18739695

Byl, E., Topping, K. J., Struyven, K., & **Engels, N.** (2022). Social integration in first-year undergraduates: The role of peer learning. *Journal of College Student Development*, *63*(1), 85–100. https://doi.org/10.1353/csd.2022.0008

Carroll, C., Patterson, M., Wood, S., Booth, A., Rick, J., & **Balain, S.** (2007). A conceptual framework for implementation fidelity. *Implementation Science*, *2*(1), 40. https://doi.org/10.1186/1748-5908-2-40

Cheng, D., & **Walters, M.** (2009). Peer-assisted learning in mathematics: An observational study of student success. *Journal of Peer Learning*, *2*(1), 23–39. https://journalofpeerlearning.org/articles/14

Chi, M. T. H., Roy, M., & **Hausmann, R. G.** (2008). Observing tutorial dialogues collaboratively: Insights about human tutoring effectiveness from vicarious learning. *Cognitive Science*, *32*(2), 301–341. https://doi.org/10.1080/03640210701863396

Clements, K. A., Vallone, K. T., Clements, T. P., Catania, E. H., Claiborne, L. L., Friedman, K. L., Graham, T. R., Johnson, H. J., Starko, S. R., Todd, T. D., Watkins, J., & **Brame, C. J.** (2025). Impacts of learning assistants on student belonging and confidence vary across science disciplines and course contexts. *CBE—Life Sciences Education*, *24*(2), ar26. https://doi.org/10.1187/cbe.24-07-0179

Cochran, W. G. (1954). Some methods for strengthening the common χ^2 tests. *Biometrics*, *10*(4), 417–451. https://doi.org/10.2307/3001616

Dawson, P., van der Meer, J., Skalicky, J., & **Cowley, K.** (2014). On the effectiveness of Supplemental Instruction: A systematic review of Supplemental Instruction and peer-assisted study sessions literature between 2001 and 2010. *Review of Educational Research*, *84*(4), 609–639. https://doi.org/10.3102/0034654314540007

Dekker, I., Luberti, M., & **Stam, J.** (2023). Effects of Supplemental Instruction on grades, mental well-being, and belonging: A field experiment. *Learning and Instruction 87*, 101805. https://doi.org/10.1016/j.learninstruc.2023.101805

Entwistle, N., & **McCune, V.** (2004). The conceptual bases of study strategy inventories. *Educational Psychology Review*, *16*, 325–345. https://doi.org/10.1007/s10648-004-0003-0

European Centre for SI-PASS (2022). *Supervisor Training Manual for SI-PASS.*

Fixsen, D., Blase, K., Naoom, S., & **Van Dyke, M.** (2010). *Measuring program implementation*. National Implementation Research Network. https://docest.com/doc/179345/measuring-program-implementation

Gilman, S. E. (2025). A paired-course comparison of Supplemental Instruction and traditional tutoring. *Journal of Peer Learning*, *16*(1). https://doi.org/10.21061/jopl.122

Grubaugh, S., Levitt, G., & **Deever, D.** (2023). Harnessing AI to power constructivist learning: An evolution in educational methodologies. *EIKI Journal of Effective Teaching Methods*, *1*(3). https://doi.org/10.59652/jetm.v1i3.43

Hoiland, S. L., Reyes, S., & **Varelas, A.** (2020). The impact of a Supplemental Instruction Program on diverse peer leaders at a two-year institution. *Journal of Peer Learning*, *13*(1), 5–20. https://journalofpeerlearning.org/articles/92

Huijser, H., Kimmins, L., & **Evans, P.** (2008). Peer assisted learning in fleximode: Developing an online learning community. *Journal of Peer Learning*, *1*(1), 51–60. https://journalofpeerlearning.org/articles/7

International Center for Supplemental Instruction (2025). *What is Supplemental Instruction?* https://info.umkc.edu/si/

Järvelä, S., Malmberg, J., Haataja, E., Sobocinski, M., & **Kirschner, P. A.** (2021). What multimodal data can tell us about the students' regulation of their learning process? *Learning and Instruction*, *72*, 101203. https://doi.org/10.1016/j.learninstruc.2019.04.004

Kift, S. (2015). A decade of transition pedagogy: A quantum leap in conceptualising the first year experience. *HERDSA Review of Higher Education*, *2*(1), 51–86.

Kraft, M. A. (2020). Interpreting effect sizes of education interventions. *Educational Researcher*, *49*(4), 241–253. https://doi.org/10.3102/0013189X20912798

Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & **Hayek, J. C.** (2006). *What matters to student success: A review of the literature* (Vol. 8). National Postsecondary Education Cooperative.

Laming, D. (2004). *Human judgment: The eye of the beholder*. Cengage Learning EMEA.

Le, H.-G., Sok, S., & **Heng, K.** (2024). The benefits of peer mentoring in higher education: Findings from a systematic review. *Journal of Learning Development in Higher Education, 31*. https://files.eric.ed.gov/fulltext/EJ1447398.pdf

Malm, J., Bryngfors, L. E., & **Mörner, L. L.** (2010). Supplemental Instruction (SI) at the Faculty of Engineering (LTH), Lund University, Sweden. An evaluation of the SI-program at five LTH engineering programs autumn 2008. *Journal of Peer Learning*, *3*(1), 38–50. https://journalofpeerlearning.org/articles/22

Malm, J., Bryngfors, L., & **Mörner, L. L.** (2015). The potential of Supplemental Instruction in engineering education: Helping new students to adjust to and succeed in university studies. *European Journal of Engineering Education*, *40*(4), 347–365. https://doi.org/10.1080/03043797.2014.967179

Malm, J., Carey, W., Dahlberg, L., Mörner, L.-L., & **Ody, M.** (2023). *Status report for European SI/PASS/PAL-programmes: Post-pandemic/Second edition*. European Centre for SI-PASS. https://doi.org/10.13140/RG.2.2.18513.30564

Malm, J., Ody, M., Elvén Eriksson, H., Fairclough, I., Helde, R., Oakley, M., Rotherham, B., Suzen, E., Sletvold, H., & **Walsh Olesen, A.** (2022). How have Supplemental Instruction-Peer Assisted Study Sessions (SI-PASS) programmes adapted during the coronavirus pandemic? Studies from four higher education institutes in Ireland, Norway, the UK and Sweden. *Student Engagement in Higher Education Journal*, 4(2), 24–44. https://sehej.raise-network.com/raise/article/view/1152

Martin, D. C., & **Arendale, D. R.** (1992). *Supplemental Instruction: Improving first-year student success in high-risk courses*. (Monograph No. 7). National Resource Center for the Freshman Year Experience, University of South Carolina. https://eric.ed.gov/?id=ED354839

Martin, D. C., & **Hurley, M.** (2005). Supplemental Instruction. In M. L. Upcraft, J. N. Gardner, & B. O. Barefoot (Eds.), *Challenging and supporting the first-year student: A handbook for improving the first year of college* (pp. 308–319). Jossey-Bass.

Osborn, T. G., Town, R., Ellis, R., Buckman, J. E. J., Saunders, R., & **Fonagy, P.** (2022). Implementing peer support in higher education: A feasibility study. *SSM – Mental Health, 2,* 100175. https://doi.org/10.1016/j.ssmmh.2022.100175

Palmer, M., O'Kane, P., & **Owens, M.** (2009). Betwixt spaces: Student accounts of turning point experiences in the first-year transition. *Studies in Higher education*, *34*(1), 37–54. https://doi.org/10.1080/03075070802601929

Porter, S. R., & **Whitcomb, M. E.** (2005). Non-response in student surveys: The role of demographics, engagement and personality. *Research in Higher Education, 46*(2), 127–152. https://doi.org/10.1007/s11162-004-1597-2

Power, C., & **Dunphy, K.** (2010). Peer facilitated learning in mathematics for engineering: A case study from an Australian university. *Engineering Education*, *5*(1), 75–84. https://doi.org/10.11120/ened.2010.05010075

Rokusek, B., Moore, E., Waples, C., & **Steele, J.** (2022). Impact of Supplemental Instruction frequency and format on exam performance in anatomy and physiology. *HAPS Educator*, *26*(2), 5–13. https://files.eric.ed.gov/fulltext/EJ1361206.pdf

Slavin, R. E. (2007, March 14). *Statement of Robert E. Slavin, director, Center for Data-Driven Reform in Education*. [Testimony] Committee on Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Activities. Hearings on Implementation of No Child Left Behind.

Slavin, R. E. (2008). Evidence-based reform in education: What will it take? *European Educational Research Journal, 7*(1), 124–128. https://doi.org/10.2304/eerj.2008.7.1.124

Tight, M. (2018). *Higher education research: The developing field.* Zed Books. https://doi.org/10.5040/9781474283779

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education, 68*(6), 599–623. https://doi.org/10.1080/00221546.1997.11779003

Tinto, V. (2012). *Completing college: Rethinking institutional action*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226804545.001.0001

Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, *19*(3), 254–269. https://doi.org/10.1177/1521025115621917

Topping, K. J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher Education*, *32*(3), 321–345. https://doi.org/10.1007/BF00138870

Verpoorten, D., Parlascino, E., & **Colaux, C.** (2021). SI-PASS in a Belgian university: A pilot showcase. In A. Strømmen-Bakhtiar, R. Helde, & E. Suzen (Eds.), *Supplemental Instruction: Student learning processes* (Vol. 2). Waxmann. https://doi.org/10.31244/9783830993254

Watts, H., Malliris, M., & **Billingham, O.** (2015). Online peer assisted learning: Reporting on practice. *Journal of Peer learning*, *8*(1), 85–104. https://journalofpeerlearning.org/articles/63

Wilson, T., Lightbody, I., Devine, C., Moody, H., Medland, R., Brady, J., Gamlath, S., Liu, Y., & **Herath, D.** (2017). STIMulating success: An institutional approach to support for learning in STEM-based disciplines. In *Proceedings of the 2017 Students, Transitions, Achievement, Retention and Success (STARS) Conference* (pp. 1–10). Office for Learning and Teaching (OLT). https://eprints.qut.edu.au/109994/11/STARS_2017_GPR_Wilson%2Bet%2Bal.pdf

Zamberlan, L., & **Wilson, S.** (2015). Developing an embedded peer tutor program in design studio to support first year design students. *Journal of Peer Learning, 8*(1), 5–17. https://journalofpeerlearning.org/articles/58

Zha, S., Estes, M. D., & **Xu, L.** (2019). A meta-analysis on the effect of duration, task, and training in peer-led learning. *Journal of Peer Learning*, *12*(1), 5–28. https://journalofpeerlearning.org/articles/87

Zhang, Z., & **Bayley, J. G.** (2019). Peer learning for university students' learning enrichment: Perspectives of undergraduate students. *Journal of Peer Learning*, *12*(1), 61–74. https://journalofpeerlearning.org/articles/90

TO CITE THIS ARTICLE:
Puttaert, N., Toye, D., Mélot, F., Colaux, C., Nyssen, A.-S., & Verpoorten, D. (2026). A Three-Year Multi-Faculty Evaluation of 16 SI-PASS Schemes: Attendance Thresholds, Performance Gains, and Standardized Metrics. *Journal of Peer Learning*, *17*(1): 3, 1–22. https://doi.org/10.21061/jopl.143

Submitted: 09 June 2025
Accepted: 17 June 2026
Published: 29 July 2026

Journal of Peer Learning is a peer-reviewed open access journal published by VT Publishing.

VIRGINIA TECH. PUBLISHING