

The study described here surveyed both past co-op/internship students and current and past co-op site supervisors for their perceptions of quality indicators at internships/co-

We will then statistically compare these perceptions for the purpose of tailoring internships to meet the expectations of these three groups. We will conclude by formulating sets of criteria for quality internships that will assist in optimizing quality experiences for the benefit of all three groups integrally involved in developing and providing internships.

Site Supervisors' and Students' Perceptions of Quality Indicators of Cooperative Learning¹

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Abstract

The cooperative education literature offers an array of advice on quality site practices. This advice is both diverse and occasionally contradictory. For this study a 60-item questionnaire sought opinions on site learning quality from both site supervisors and past co-op/internship students. Using factor analysis, five quality indicators were isolated from site supervisors and five were isolated from students. These items were compared with those of school coordinators from a prior study (Page, Geck, & Wiseman, 1999). Both similarities and differences were discerned in the dimensions of quality learning distinguished by site supervisors, student interns, and school coordinators of co-ops/internships. The results provide a set of guidelines which should prove useful in enhancing co-op/internship experiences for all three cohorts.

ops. It is a sequel to our prior study (Page, Geck, & Wiseman, 1999) that examined school coordinators' perceptions of site learning quality. The purpose of the present study is to compare school coordinators' perceptions of quality learning from internships with those of student interns and site supervisors. The findings of the past and present studies should generate a set of nationally based criteria for judging the quality of site learning experiences for students. These criteria should assist in the selection and implementation of internships that provide optimal learning for students, benefits for sponsoring sites, and collaborative learning opportunities for schools and businesses.

The present study will begin by examining the literature on site supervisors' and students' perceptions of quality internships with brief mention of school coordinators' perceptions from the prior study.

Site Supervisors' Perceptions

Surveys of site supervisors normally probe for benefits to them and their organizations rather than contributions they make to student learning for students (Erlich, 1978; Hurd & Hendy, 1997; Laycock et al., 1992). Occasionally, however, the literature reflects on contributions of site personnel vis-a-vis student learning. Seven survey studies were isolated whose findings appear to cluster into four categories: sharing of information, role modeling, student productivity, and professionalism.

Site supervisors associate quality to the sharing of information with school representatives; that is, the co-op experience is enhanced when site personnel know what the school expects of the students; they also desire guidance from schools in identifying helpful projects (Owens & Owens, 1982). In their study of both students and employers, Laycock et al. (1992) found support for the hypothesis that co-op quality is positively related to a realistic job preview.

Site supervisors should serve as role models of professional behavior. Laycock et al. (1992) found that co-op quality is correlated to posi-

tive perceptions of supervisors. Supervisors expect to help students and share their professional expertise with them (Elrich, 1978). To facilitate role modeling, site personnel feel students should follow instructions and act responsively to their suggestions (Neal, 1983; Wiseman & Page, 1983).

When asked for indicators of a quality learning experience, site personnel indicated student productivity to be central (Wiseman & Page, 1983). Apostolides and Looye (1997a) found that site supervisors expect students to be high in both quantity and quality of work. Students should be exposed to a variety of site learning experiences and provided with adequate resources to do their work (Page, Wiseman, & Crary, 1982).

Site personnel expect students to learn and exhibit qualities of professionalism by adapting to the professional culture of the organization. Site supervisors look for students to show initiative (Owens & Owens, 1982) and work independently (Cross, 1975). Neal (1983) surveyed 330 co-op employers and found that students are expected to arrive for work and appointments on time and perform their responsibilities thoroughly. On the basis of these research studies, we can conclude that site supervisors of co-ops/internships anticipate that students will be productive, responsible, and independent. This makes perfect sense: if site supervisors had to spend an undue amount of time monitoring and training students, it would detract from their ability to do their own work.

Students' Perceptions

What we know about students' perceptions of their internships or co-op experiences is usually revealed through surveys of past student interns. A review of literature based on student surveys revealed seven aspects of site learning quality: career clarity, student professionalism, a sense of belonging, effective supervision, student productivity, learning, and development of useful skills. Students have indicated their co-op/internship experiences help them gain career clarity. Co-op experiences help students gain clarity in their career expectations and feel better prepared to enter a profession (Coll, Eames, & Halsey, 1997). In fact,

Page et al. (1982) found that clarity seems to be enhanced when site personnel explicitly discuss career options with students. Students also perceive that their co-op experiences give them a competitive edge in the job market (Cannon & Arnold, 1998; Downs, 1976) and reduce "reality shock" in the start of a first permanent job (Hall, Stiles, & Kuzma, 1995).

Students perceived their co-op experiences as opportunities to develop their professionalism. They associate quality experiences with being granted credibility and treated as regular professional employees by site personnel (Apostolides & Looye, 1997b; Hall et al., 1995; Page, 1997). Students expect to experience the pressures of professional life, use their critical thinking skills, and voice their own opinions (Apostolides & Looye, 1997b). Mueller (1992) found that students wanted to work independently and to learn how to apply resources. Further, Hall et al. (1995) discovered that students perceive internships as facilitating good work habits and helping them to conform to the same norms of behavior and attire as expected of regular employees.

Co-op students desire to belong to a network of professionals. They want to extend their social learning (Cutt & Loken, 1995) by communicating in teams (Coll et al., 1997) and functioning in meetings and social situations (Van Gyn, Cutt, Loken, & Ricks, 1997). According to Apostolides and Looye (1997b), co-op students want to be exposed to clients and important professionals in the field. In their study of 1,103 high school students enrolled in an experience based career education program across 16 states, Owens and Owens (1982) found satisfaction with the co-op experience increases with the number of interpersonal relationships the students establish.

Effective supervision is seen as an aspect of quality site experiences. Students perceive higher quality site learning when they experience positive relationships with their supervisors (Downs, 1976; Owens & Owens, 1982). Supervisors are expected to serve as role models of professional behavior, remain open to ideas, share their professional time with students, and provide training (Hall et al.,

1995; Page et al., 1982). Students appreciate praise for their hard work and for the support from site personnel (Apostolides & Looye, 1997b; Coll et al., 1997).

Students are concerned about being productive at their sites (Laycock, Hermon, & Laetz, 1992; Page et al., 1982). This productivity can take such forms as working independently on projects, working in teams, and taking responsibility for specific tasks (Apostolides & Looye, 1997b). Page et al. (1982) found interns who are productively involved tend to develop an enhanced sense of professional identity.

Students view co-op work experience as valuable learning experiences that supplement their course work (Downs, Harper, & Hunt, 1976; Hall et al., 1995). This can involve learning from performing duties and through explicit instruction (Page et al., 1982). They relate quality learning with challenging work, adapting to new situations, and participating in a variety of tasks (Apostolides & Looye, 1997b; Coll et al., 1997; Owens & Owens, 1982). Students desire to apply the knowledge and special skills learned in the classroom (Stern, Stone, Hopkins, McMillion, & Cagampang, 1992). Students report that their co-op experiences provide them with information about their studies making their school work more interesting and meaningful (Coll et al., 1997; Stern et al., 1992). Students are satisfied when their co-op work relates to their studies (Page, 1983).

Students want to learn skills that will be useful in their professional lives. Hall et al. (1995) found high agreement on the statement, "internships help students identify job related abilities, interests, and values." Time management, oral and written communication (Apostolides & Looye, 1997b; Coll et al., 1997), and applied problem solving (Van Gyn et al., 1996) are mentioned explicitly. Page et al. (1982) reported that students find job pressure helpful in building confidence in their abilities.

In summary, student interns perceived quality learning as opportunities to grow professionally. This growth may be in the form of enhanced networking, greater skill training, and better familiarity

with the job market. Further, in the minds of the students, the growth is facilitated by working with site personnel — not merely autonomously or independently from the site personnel. This may result in a natural dialectic with the site supervisors' expectations, i.e., the site supervisor may desire greater independence whereas the co-op student may prefer greater interdependence. The university coordinator would do well to help the two parties negotiate this possible antagonistic dialectic.

School Coordinators' Perceptions

In our past research (Page, Geck, & Wiseman, 1999), we generated a 60-item questionnaire asking school coordinators/directors about their perceptions of site learning quality. Through factor analysis, we isolated five characteristics of quality site learning: professional development, professionalism, thinking and communication skills, challenging experiences, and demeanor of pride and competence.

From the literature surveyed, professionalism overlaps all cohort groups. Students expect to be treated professionally: to be taken seriously and treated like other professional employees, to participate in real work, to experience the pressures of professional life, to express their opinions, and to be granted credibility. Site personnel expect students to act professionally, to be responsible, to show initiative, and to work effectively with others. School coordinators expect students to learn the norms of professional life, to be punctual, diligent, dependable, and to show initiative.

Both students and site personnel expect co-ops to be involved productively at their sites (Page et al., 1982). Students want to work productively and responsibly on their projects. Site personnel expect to assign a variety of tasks, and for students to be helpful to the organization. To accomplish these goals, sites should be willing to provide co-ops with the resources and challenges needed for students to be productive in the organization and in their own pursuits.

Research Questions

Based on the above analysis, five research ques-

tions were asked:

RQ1: How do school coordinators' perceptions compare with those of site supervisors?

RQ2: What are the perceptions of site supervisors regarding quality of site learning?

RQ3: How do school coordinators' perceptions compare with those of students?

RQ4: What are the perceptions of past co-op/internship students regarding quality of site learning?

RQ5: How can the findings of all cohort groups be combined to establish a set of guidelines that will benefit site learning quality?

Method

Samples

In our prior study (Page et al., 1999), a total of 1080 survey questionnaires were sent nationally to school co-op/internship coordinators. The survey sample in that earlier study consisted of members of two cooperative education associations having representatives from the United States, Canada, and the territory of Guam. A total of 383 completed and returned the survey generating a return rate of 35.4 percent. Nearly three-fourths (74.7%) of the participants had four or more years of experience in their respective co-op/internship programs. The perceptions of this sample of co-op/internship coordinators provided the baseline for our comparisons with student interns' and site supervisors' perceptions of quality internships (see Page et al., 1999, for a more detailed report of the study assessing co-op/internship coordinators' perceptions).

In the present study, 97 past interns participated. All 97 were either college or university students. In terms of the organizations hosting them as interns, 47.3 percent were profit-motivated organizations, 14.0 percent were nonprofit organizations, and 38.7 percent were academic institutions. The participants came from academic internships throughout the United States. Finally, over half (55.7%) of the participants had one year or less internship experience while 29.8 percent had between one and two years experience.

Further, a total of 164 site supervisors of internships participated in the study. In terms of the participants' organizations, 58.5 percent of the partic-

ipants were from profit-motivated organizations, 36.0 percent were from nonprofit organizations, and 5.5 percent were from academic institutions. Further, the participants supervised academic internships throughout the United States. Finally, over half (50.6%) of the participants had over two years of experience working with internship programs.

Questionnaire

The 60-item questionnaire was based on a literature review, along with input from four focus groups consisting of 24 co-op professionals at a cooperative education workshop (see Page et al., 1999). As can be seen in Table 1, the 60 items focused on specific aspects of the internship experience, for example, "site personnel should provide students with career advice" or "interns should ask informed questions." To facilitate completion of the questionnaire, the items were clustered into three parts: how students should be treated while on site, what site personnel should do, and what students should do. It was felt that clustering these items would help focus the items as well as increase the ease by which the questionnaire would be completed. The respondents were asked to rate the items by generalizing across their professional co-op/internship experiences. To evaluate the items, each was assigned a seven-point scale ranging from "somewhat important" to "extremely important."

Results

Descriptive Statistics

Table 1 presents a breakdown of the three samples' mean agreements with each of the 60 internship quality items. Overall, the five items obtaining the greatest levels of agreement were: co-op students should be diligent and dependable (mean = 6.74), co-op student should demonstrate an ability to learn and perform abilities (6.55), co-op student should be receptive to constructive criticism from site personnel (6.49), site personnel should serve as role models of professional behavior (6.32), and co-op student should actively seek opportunities to contribute (6.29). Overall, the five items receiving the least agreement were: co-op student should be provided a personalized work space

Table 1
Group Comparisons on Internship Quality Items

	Site Super	Co-op Student	School Coord	F	p
Co-op students, while on site, should be:					
1. encouraged to think critically	6.02	5.98	6.22	3.1	n.s.
2. exposed to the pressures of professional work	5.66	5.75	5.71	.2	n.s.
3. invited to apply their classroom learning	5.62a*	5.85ab	6.11b	12.6	.001
4. given challenging duties/assignments	6.02	6.29	6.37	8.2	.001
5. given the perception of gaining an edge in the job market	5.22	5.37	5.43	1.4	n.s.
6. exposed to "office politics"	3.91a	4.73b	4.77b	20.5	.001
7. shown that not all aspects of work are glamorous	5.46	5.65	5.65	1.2	n.s.
8. helped with their written communication skills	5.29	5.39	5.59	3.0	n.s.
9. given help regarding their career direction	5.07	5.53	5.25	3.2	n.s.
10. compensated monetarily	4.23a	5.27b	5.44b	34.6	.001
11. integrated into a work team	5.76	5.90	5.80	.4	n.s.
12. given a realistic preview of the industry	6.13	6.34	6.27	1.9	n.s.
13. helped to develop their oral communication skills	5.72	5.95	5.78	1.2	n.s.
14. exposed to expectations of business ethics	5.94	6.06	6.06	.9	n.s.
15. helped to develop social interaction skills	5.24	5.56	5.48	2.5	n.s.
16. exposed to practical problem solving methods	6.01	6.10	6.18	2.0	n.s.
17. encouraged to exercise independent judgment	5.51a	6.04ab	5.84b	9.4	.001
18. assigned duties directly related to their fields of study	5.31a	5.93b	5.97b	16.5	.001
19. provided a personalized work space	4.05	4.47	4.17	2.2	n.s.
20. given major responsibilities for projects	4.60	5.11	4.93	4.8	n.s.
Site personnel should:					
21. show thoughtfulness regarding co-op/intern involvement	6.16	6.28	6.17	.6	n.s.
22. revise expectations when needed	5.89	5.79	5.89	.3	n.s.
23. help students build self esteem	5.51	5.60	5.43	.7	n.s.
24. provide students with written performance feedback	5.33a	5.98b	6.29b	42.2	.001
25. be open to constructive feedback from school coordinators	5.33	5.64	5.65	4.3	n.s.
26. serve as role models of professional behavior	6.29	6.40	6.32	.5	n.s.
27. provide students with career advice	5.22ab	5.56a	5.01b	6.7	.001
28. demonstrate patience with students as learners	5.97ab	6.25a	5.80b	8.2	.001
29. help students appreciate the meaning of occupational work	5.58	5.64	5.43	1.7	n.s.
30. provide instruction sessions for co-op/intern students	5.02	5.27	4.92	2.3	n.s.
31. help students to identify and define problems	5.61	5.88	5.72	1.8	n.s.
32. ensure that students have a variety of duties	5.63	5.89	5.63	1.9	n.s.
33. develop and use student uniqueness/diversity	5.48	5.70	5.47	1.3	n.s.
34. help students to network within the industry	4.66a	5.58ab	5.09b	12.9	.001
35. write letters of recommendation for deserving students	5.80ab	6.14a	5.47b	11.3	.001
36. help students establish their professional identities	4.87	5.40	5.09	4.6	n.s.
37. negotiate duties with students early in the experience	5.41	5.65	5.81	4.9	n.s.
38. share their professional time/expertise with students	5.80	6.07	5.90	2.3	n.s.
39. accept the role of on-site instructor	5.85	5.86	6.11	4.0	n.s.
40. encourage students to interact with a variety of workers	5.84	5.95	5.75	1.4	n.s.
Co-op students/interns should:					
41. seek out opportunities to network beyond the immediate site	5.02a	5.96b	5.56b	17.5	.001
42. express appreciation for their co-op/internship experiences	5.21a	6.36b	5.95b	32.2	.001
43. apply their classroom learning to their work assignments	5.68a	6.07b	6.23b	18.6	.001
44. ask informed questions	6.15	6.45	6.21	3.8	n.s.
45. learn appropriate grooming/attire	6.21	6.35	6.21	3.2	n.s.

continued on next page

Co-op students/interns should:	Site Super	Co-op Student	School Coord	F	p
46. identify themselves as co-ops/interns in dealings with others	4.74	4.86	4.81	.2	n.s.
47. be diligent and dependable	6.63	6.85	6.76	4.5	n.s.
48. be receptive to constructive criticism from site personnel	6.21a	6.69b	6.56b	6.0	.001
49. view themselves as ambassadors for their schools	5.24a	5.59ab	6.05b	23.3	.001
50. demonstrate intellectual rigor	5.59	6.00	5.83	4.3	n.s.
51. maintain regular contact with their school coordinator	5.09a	5.49ab	5.91b	21.7	.001
52. keep journal of site activities and insights	4.78	5.16	5.40	9.2	.001
53. contribute to productivity of organization	5.96	6.34	6.20	5.8	n.s.
54. be assertive regarding the nature of their involvement	5.46a	6.09b	5.56a	10.0	.001
55. extract principles which guide actions of site personnel	5.24	5.56	5.39	2.2	n.s.
56. actively seek opportunities to contribute	6.05a	6.55ab	6.34b	11.5	.001
57. demonstrate measurable progress	5.87a	6.26b	6.18ab	7.2	.001
58. conduct outside research on site-related problems	4.34	4.84	4.40	3.5	n.s.
59. work at developing professional relationship	5.63a	6.30b	5.84a	11.9	.001
60. demonstrate an ability to learn and perform duties	6.46	6.75	6.55	4.8	n.s.

• Means with different letters are significantly different using the Tukey criterion at $p < .001$.

(4.45), co-op student should be exposed to "office politics" (4.54), co-op student should identify themselves as co-ops/interns in dealings with others (4.79), and co-op student should be given major responsibilities for projects (4.87).

In terms of the differences among the samples in their perceptions of quality learning, significant differences ($p < .001$) were found on 22 items. As noted in Table 1, school coordinators indicated significantly more agreement with the following items: (a) site personnel should provide students with written performance feedback, (b) co-op students should be compensated monetarily, (c) co-op students should view themselves as ambassadors for their schools, (d) co-op students should maintain contact with their school coordinator, (e) co-op students should apply their classroom learning to their work assignments, (f) co-op students should be exposed to "office politics," (g) co-op students should be assigned duties directly related to their fields of study, and (h) students should be invited to apply their classroom learning. Co-op students indicated significantly more agreement with the following items: (a) co-op students should express their appreciation for their co-op experiences, (b) co-op students should seek opportunities to network, (c) co-op students should be receptive to construc-

tive criticism from site personnel, (d) co-op students should work at developing professional relationships, (e) site personnel should write letters of recommendation for deserving students, and (f) co-op students should actively seek opportunities to contribute.

Comparison of School Coordinators' and Site Supervisors' Perceptions of Quality

Research question one (RQ1) asked how school coordinators' perceptions of site quality compare with those of the site supervisors. A confirmatory factor analysis using structural equations was used to make the comparisons. The results of the confirmatory factor analysis indicated that there were significant differences between school coordinators' and site supervisors' perceptions of the quality of internships ($\chi^2 = 1303.3$, $df = 65$, $p < .0001$, Goodness-of-Fit Index = .86). These results suggest there are unique features in the site supervisors' perceptions of the quality of internships. In order to determine these unique features, an exploratory factor analysis was computed on the internship quality items rated by the site supervisors.

Site Supervisors' Perceptions of Internship Quality

Research question two (RQ2) asked for the actual perceptions of the site supervisors. The 60 internship quality items were analyzed using principal component analysis. Using Cattell's (1966) Scree Test and the interpretability of the results as criteria for factor extraction, a total of five factors were indicated. These factors accounted for a total of 38.7 percent of the total variance in the items. To determine a parsimonious and interpretable solution, these five factors were rotated using an Oblimin rotation with Kaiser normalization. The five-factor solution is presented in Table 2.

The first factor accounted for 11.0 percent of the total variance in the 60 items. As indicated in Table 2, a total of 16 items had significant (i.e., $> .40$) factor loadings on this factor. The eight highest of these significant-loading items were: students should be receptive to constructive criticism from site personnel (factor loading = .74), co-op students should be diligent and dependable (.67), co-op students should demonstrate an ability to learn and perform duties (.65), site personnel should share their professional time/expertise with students (.61), co-op students should demonstrate measurable progress (.56), co-op students should contribute to the productivity of the organization (.56), co-op students should learn appropriate grooming/attire (.56), and site personnel should show thoughtfulness regarding co-op involvement (.56). The common thread running through these items involves the receptivity of the student to learning and constructive help. For this reason, this factor was labeled *constructive learning climate*. An inter-item reliabilities analysis was computed on the 16 items and the results suggested high reliability ($\alpha = .87$).

The second factor accounted for 8.3 percent of the total variance in the 60 items. Ten items had significant loadings on this factor. The five items having the highest loadings were: co-op students should be given help regarding their career direction (factor loading = .74), site personnel should provide students with career advice (.64), site personnel should help students network within the industry (.60), site personnel should help students establish their professional identities (.56), and

co-op students should be given the perception of gaining an edge in the job market (.55). These items refer to the professional development of the student; thus, this factor was labeled *professional development*. An inter-item reliabilities analysis indicated a high degree of reliability for the 11 items loading significantly on this factor ($\alpha = .82$).

The third factor accounted for 7.3 percent of the total variance in the 60 items and had nine items load significantly on it. The four highest loading items were: co-op student should conduct outside research on site-related problems (factor loading = .69), co-op students should keep a journal of site activities and insights (.68), co-op students should maintain regular contact with their school coordinator (.68), and co-op students should view themselves as ambassadors for their schools (.64). The prominent theme in these items focuses on the academic and scholarly dimension of internships. Thus, this factor was labeled internship academic integrity. The inter-item reliability analysis on the nine items composing this factor was high ($\alpha = .80$).

The fourth factor accounted for 6.5 percent of the total variance in the 60 items and had two items that loaded significantly on it. These two items were: co-op students should be exposed to practical problem solving methods (factor loading = .43) and site personnel should help students to identify and define problems (.43). Since these items suggest factors involving the development of problem-solving skills in the co-op student, it was decided to label this factor, *problem solving skills*. The correlation between these two items was moderate and positive ($r = .46$, $p < .001$).

The fifth and final factor accounted for 5.6 percent of the total variance in the 60 internship quality items. The six items that had significant loadings on this factor were: co-op students should be encouraged to exercise independent judgment (factor loading = .66), co-op students should be given major responsibilities for projects (.54), co-op students should be given challenging duties/assignments (.47), co-op students should be assertive regarding the nature of their involvement (.46), and co-op students should be encouraged to think

Table 2
Factor Pattern Matrix for Site Supervisors' Quality Items

Factor 1 (Constructive Learning Climate)	Fac1	Fac2	Fac3	Fac4	Fac5
48. interns open to constructive criticism from site personnel	.74				
47. interns be diligent and dependable	.67				
60. interns demonstrate an ability to learn and perform duties	.65				
38. site sup shares their time/expertise with students	.61				
53. interns contribute to productivity of organization	.56				
57. interns demonstrate measurable progress	.56				
21. site sup shows thoughtfulness regarding intern involvement	.56				
45. interns learn appropriate grooming/attire	.56				
44. interns ask informed questions	.52				
56. interns actively seek opportunities to contribute	.51				
26. site sup serves as role models of professional behavior	.50				
29. site sup helps students appreciate the meaning of occupation	.49				
12. interns given a realistic preview of the industry	.47				
22. site sup revises expectations when needed	.45				
39. site sup accepts the role of on-site instructor	.43				
Factor 2 (Professional Development)					
9. interns given help regarding their career direction		.74			
27. site sup provides students with career advice		.64			
34. site sup helps students to network within the industry		.60			
35. site sup helps students establish their professional identities		.56			
5. interns given the perception of gaining an edge in the job market		.55			
23. site sup helps students build self esteem		.52			
15. interns helped to develop social interaction skills		.49			
8. interns helped with their written communication skills		.46			
13. interns helped to develop their oral communication skills		.44			
30. site sup provides instruction sessions for interns		.41			
Factor 3 (Internship Academic Integrity)					
58. interns conduct outside research on site-related problems			.69		
51. interns maintain regular contact with their school coordinator			.68		
52. interns keep journal of site activities and insights			.68		
49. interns view themselves as ambassadors for their schools			.64		
42. interns express appreciation for their internship experiences			.50		
46. interns identify themselves as interns in dealings with others			.49		
59. interns work at developing professional relationships			.48		
50. interns demonstrate intellectual rigor			.46		
54. interns extract principles which guide site personnel			.46		
Factor 4 (Problem Solving Skills)					
16. interns exposed to practical problem solving methods				.43	
31. site sup helps students to identify and define problems				.43	
Factor 5 (Student's Independent Work)					
17. interns encouraged to exercise independent judgment					.66
20. interns given major responsibilities for projects					.54
4. interns given challenging duties/assignments					.47
54. interns be assertive regarding their involvement					.46
1. interns encouraged to think critically					.42

critically (.42). These items seem to refer to the students' ability to work independently and productively at the worksite. Thus, the factor was labeled *student's independent work*. The inter-item reliability for these four items was satisfactory ($\alpha = .70$).

While the confirmatory factor analysis indicated that there were differences between the school coordinators' perceptions of quality internships and site supervisors' perceptions of quality internships, some similarities seem to exist between the two sets of perceptions. To ascertain the nature of these similarities, factor comparisons were computed using Cattell et al.'s (1969) *s* index, which assesses the matches of pairs of factors and their item loadings. Table 3 presents the *s* indices for the two sets of factors. Three significant matches arose. Both cohort groups perceived three similar dimensions in the quality of internships, namely, quality internships should be constructive learning experiences, should enhance the professional development of the co-op student, and should have academic integrity (although school coordinators felt the students should assume a major role for the responsibility for academic integrity of the internship). Unique to school coordinators were the perceptions that the students should approach the experience professionally and that students should have competent communication skills. On the other hand, unique to site supervisors were the perceptions that students should develop problem solving skills and that students should work independently.

Comparison of School Coordinators' and Students' Perceptions of Internship Quality

Research question three (RQ3) asks how school coordinators' perceptions of quality compare with those of the students. A confirmatory factor analysis using structural equations was used to make the comparisons. The results of the confirmatory factor analysis indicated that there were significant differences between school coordinators' and student interns' perceptions of the quality of internships ($\chi^2 = 1226.0$, $df = 65$, $p < .0001$, Goodness-of-Fit Index = .85). These results suggest there are unique features in the student interns' perceptions of the

quality of internships. In order to determine these unique features, an exploratory factor analysis was computed on the internship quality items rated by the student interns.

Students' Perceptions of Internship Quality

Research question four asks for the actual perceptions of the students regarding site learning quality. The 60 site quality items were analyzed using principal component analysis. Using Cattell's (1966) Scree Test and the interpretability of the results as criteria for factor extraction, a total of five factors were indicated. These factors accounted for a total of 46.8 percent of the total variance in the items. To determine a parsimonious and interpretable solution, these five factors were rotated using an Oblimin rotation with Kaiser normalization. The five-factor solution is presented in Table 4.

The first factor accounted for 25.3 percent of the total variance in the 60 items. As indicated in Table 2, a total of 17 items had significant (i.e., $> .40$) factor loadings on this factor. The six highest of these significant-loading items were: site personnel should help students network within the industry (factor loading = .63), site personnel should write letters of recommendation for deserving students (.62), co-op students should be given the perception of gaining an edge in the job market (.62), co-op students should be given major responsibilities for projects (.60), co-op students should work at developing professional relationships (.59), and site personnel should help students establish their professional identities (.59). The common thread running through these items involves the development of students' career potential. For this reason, this factor was labeled *career development*. An inter-item reliabilities analysis was computed on the 17 items and the results suggested high reliability ($\alpha = .91$).

The second factor accounted for 6.8 percent of the total variance in the 60 items. Ten items had significant loadings on this factor. The six items having the highest loadings were: co-op students should demonstrate an ability to learn and perform duties (factor loading = .63), co-op students should actively seek opportunities to contribute (.63), co-op

Table 3
Factor Comparisons between School Coordinators, Student Interns and Site Supervisors

School Coordinators	Student Intern Factors					Site Supervisor Factors				
	1	2	3	4	5	1	2	3	4	5
Career Development	.70*	.11	.30	.16	.12	.10	.60*	.25	.00	.36
Student's Professionalism	.32	.63*	.00	.25	.00	.29	.11	.37	.00	.14
Student's Communication Skills	.16	-.06	.59*	.19	.17	.17	.26	.08	.07	.17
Challenging Learning Experience	.10	.30	.39	.23	.28	.40*	.17	.14	.20	.21
Student's Demeanor	.32	.06	.06	.32	.22	.29	.24	.46*	-.21	-.15

*Significant at the $p < .001$ level.

Labels of factors:

Student Intern Factors

Fac1: Career Development

Fac2: Student's Professionalism

Fac3: Occupational Skill Building

Fac4: Internship Academic Standards

Fac5: Student's Critical Thinking Skills

Site Supervisor Factors

Fac1: Constructive Learning Climate

Fac2: Professional Development

Fac3: Internship Academic Integrity

Fac4: Problem Solving Skills

Fac5: Student's Independent Work

students should contribute to the productivity of the organization (.63), co-op students should be receptive to constructive criticism from site personnel (.56), co-op students should ask informed questions (.52), and site personnel should serve as role models of professional behavior (.50). These items refer to the students' willingness and ability to act professionally in the organization; thus, this factor was labeled *student professionalism*. An inter-item reliabilities analysis indicated satisfactory reliability for the 10 items loading significantly on this factor ($\alpha = .74$).

The third factor accounted for 5.2 percent of the total variance in the 60 items and had 16 items load significantly on it. The six highest loading items were: co-op student should be assigned duties directly related to their fields of study (factor loading = .64), site personnel should help students appreciate the meaning of occupational work (.63), site personnel should demonstrate patience with students as learners (.62), co-op students should be integrated into a work team (.60), site personnel should help students build self-esteem (.60), and co-op students should be given help regarding their career direction (.60). The prominent theme in these items focuses on the students' skills and motivation

for their chosen occupations. Thus, this factor was labeled *occupational skill building*. The inter-item reliability analysis on the 16 items composing this factor was very high ($\alpha = .91$).

The fourth factor accounted for 4.9 percent of the total variance in the 60 items and had 10 items that loaded significantly on it. The six items loading highest on this factor were: co-op students should maintain regular contact with their school coordinator (factor loading = .73), co-op students should view themselves as ambassadors for their schools (.64), co-op students should keep a journal of site activities and insights (.59), site personnel should be open to constructive feedback from school coordinators (.58), co-op students should identify themselves as interns in dealing with others (.54), and co-op students should learn appropriate grooming/attire (.54). Since these items focus on the academic and scholarly dimension of internships, this factor was labeled *internship academic standards*. The inter-item reliability for the 10 items defining this factor was high ($\alpha = .83$).

The fifth and final factor accounted for 4.5 percent of the total variance in the 60 internship quality items. The four items that had significant loadings on this factor were: co-op students should be

encouraged to think critically (factor loading = .75), co-op students should be invited to apply their classroom learning (.70), co-op students should be exposed to the pressures of professional work (.67), and co-op students should be exposed to practical problem solving methods (.47). These items seem to refer to the students' ability to think critically and apply theoretical principles to their internship work. Thus, the factor was labeled *student critical thinking skills*. The inter-item reliability for these five items was satisfactory ($\alpha = .73$).

While the confirmatory factor analysis indicated that there were differences between the school coordinators' perceptions of quality internships and student interns' perceptions of quality internships, some similarities seem to exist between the two sets of perceptions. To ascertain the nature of these similarities, factor comparisons were computed using Cattell et al.'s (1969) s index, which assesses the matches of pairs of factors and their item loadings. Table 3 presents the s indices for the two sets of factors. Three significant matches arose. Both cohort groups perceived three similar dimensions in the quality of internships, namely, quality internships should enhance the professional development of the co-op student, the co-op student should approach the internship professionally, and the co-op student should have the necessary skills to successfully work at the internship site (although school coordinators felt these skills were more communicative in nature, while students felt these skills were more occupational in nature). Unique to school coordinators were the perceptions that the students should have a challenging learning experience and that the student should have an appropriate demeanor. On the other hand, unique to student interns were the perceptions that the internship should have academic integrity (involving both site supervisor and school coordinator, as well as themselves) and that students should utilize their critical thinking and integration skills.

Discussion

Comparisons of the factors (Table 3) indicate that all cohort groups perceived student professional development to be an indicator of quality site

learning. Site personnel should encourage each student to develop a professional identity and network with persons at, and associated with, the site. Students should also be given career direction and advice so they can perceive that they have attained an edge in the job market. The literature supports these claims. Canon and Arnold (1998), as well as Coll et al. (1997), suggested that co-op students feel better equipped to enter the professions. Apostolides and Looye (1997b) discovered that students wanted exposure to clients and important persons in the field. Because of the agreement of all cohort groups on this factor, we feel confident in asserting that quality site experiences should facilitate professional development of the student.

Opinions of school coordinators and site supervisors were very similar in the areas of challenging learning experiences and constructive learning climate. Site personnel expect students to learn and perform duties, while school coordinators expect those duties to be related to the student's studies. As site personnel are expected to thoughtfully share their professional expertise, students are expected to be diligent, dependable, and open to constructive criticism. Based on our analysis, we suggest that quality site experiences should provide students with challenging learning climates.

School coordinators' and site supervisors' perceptions were also similar in the areas of student demeanor and academic integrity. Students seem comfortable carrying over the norms of academia by keeping journals and conducting outside research on site related projects. Confidence and pride are generated when students identify themselves as interns/co-op students and use the opportunity to effectively represent their schools. For these reasons, it is concluded that quality site experiences should relate to educational standards so the student can maintain a demeanor of pride and competence.

School coordinators and students were highly correlated in two factor areas: student professionalism and occupational skill building. Student professionalism is based on students abilities to demonstrate progress through diligently learning and performing assigned duties, seeking opportunities to be productive, and being receptive to

Table 4
Factor Pattern Matrix for Interns' Quality Items

Factor 1 (Career Development)	Fac1	Fac2	Fac3	Fac4	Fac5
34. help students to network within the industry	.63				
35. site sup writes letters of recommendation for students	.62				
5. given the perception of gaining an edge in the job market	.62				
20. given major responsibilities for projects	.60				
59. interns work at developing professional relationship	.59				
36. site sup helps interns establish their professional identities	.59				
32. ensure that students have a variety of duties	.56				
41. seek out opportunities to network beyond immediate site	.55				
37. site sup negotiates duties with students early in experience	.51				
54. interns be assertive about their involvement	.49				
19. provided a personalized work space	.47				
58. interns conduct outside research on site-related problems	.46				
40. encourage students to interact with a variety of workers	.44				
55. interns extract principles which guide site personnel	.44				
33. develop and use student uniqueness/diversity	.42				
6. exposed to "office politics"	.41				
42. express appreciation for their internship experiences	.40				
Factor2 (Student Professionalism)					
56. interns actively seek opportunities to contribute		.63			
60. interns demonstrate an ability to learn and perform duties		.63			
48. interns open to constructive criticism from site sup		.56			
53. interns contribute to productivity of organization		.56			
44. interns ask informed questions		.52			
26. site sup serves as role models of professional behavior		.50			
8. helped with their written communication skills		-.45			
10. compensated monetarily		.45			
46. interns be diligent and dependable		.45			
57. interns demonstrate measurable progress		.45			
Factor 3 (Occupational Skill Building)					
18. assigned duties directly related to their fields of study			.64		
29. help students appreciate the meaning of occupational work			.63		
28. site sup demonstrates patience with students as learners			.62		
21. site sup helps students build self esteem			.60		
9. given help regarding their career direction			.60		
11. integrated into a work team			.60		
31. help students to identify and define problems			.57		
30. provide instruction sessions for co-op/intern students			.56		
27. site sup provides students with career advice			.53		
13. helped to develop their oral communication skills			.47		
15. helped to develop social interaction skills			.47		
12. given a realistic preview of the industry			.46		
36. site sup helps students establish their professional identities			.43		
14. exposed to expectations of business ethics			.40		
38. site sup shares their time/expertise with students			.40		
Factor 4 (Academic Standards)					
51. interns maintain regular contact with school coordinator				.73	
49. interns view themselves as ambassadors for their schools				.64	
52. interns keep journal of site activities and insights				.59	
24. site sup open to feedback from school coordinators				.58	

Factor 4 (Academic Standards)	Fac1	Fac2	Fac3	Fac4	Fac5
45. interns learn appropriate grooming/attire				.54	
47. identify themselves as interns in dealings with others				.54	
21. show thoughtfulness regarding co-op/intern involvement				.50	
22. site sup revises expectations when needed				.48	
42. express appreciation for their internship experiences				.43	
59. interns conduct outside research on site-related problems				.42	
Factor 5 (Student Critical Thinking Skills)					
1. encouraged to think critically					.75
3. invited to apply their classroom learning					.70
2. exposed to the pressures of professional work					.67
16. exposed to practical problem solving methods					.47

constructive criticism. Studies based on student opinions suggest that students want to be treated as professionals and willingly expose themselves to the pressures of professional life (Apostolides & Looye, 1997b; Page, 1997). From this analysis, we claim that quality site experiences should provide opportunities for students to apply their acquired professionalism. Factors generated by school coordinators and students also correlated in the mastery of occupational skills. A wide range of skills was represented: communication skills (both written and oral), team work skills, as well as learning the meaning of professional work, showing patience, and applying business ethics. Skills frequently mentioned in the literature are critical thinking, applied problem solving, and team work (Van Gyn et al., 1996). Coll et al. (1997) advocated writing and communication skills. Because of the variety of skills generating this factor, we conclude that quality site experiences should help the student develop a solid professional work ethic.

Two factors unique to the site supervisors were practical problem solving and independence. The site supervisors felt it important that students be able to identify and define problems in the practical world. Site personnel are often quite busy and appreciate student independence and not having to constantly shepherd them. Hence quality site experiences should expose students to practical problem solving. The other factor unique to site supervisors dealt with the student's ability to work independently. Although site personnel expect to offer stu-

dents challenging duties, they expect the student to be assertive, demonstrate independent judgment (critical thinking), and be willing to accept responsibilities for projects. According to Apostolides and Looye (1997b), students expect to work independently and to take responsibilities for specific tasks. It is concluded that quality site experiences should encourage students to work with some degree of independence.

Two factors, generated by students, that did not correlate with other cohort groups were academic approach and critical thinking skills. Student concerns for academic integrity appear to be a carry-over of school standards to their work sites. Students feel they should maintain regular contact with their schools and serve as good ambassadors for their schools. They also expect to keep records (or a journal) of their activities and progress. This leads to the following guideline: quality site experiences should incorporate scholarly norms. Another factor unique to students was critical thinking. Students want to apply their classroom learning on practical problems requiring critical thinking (Apostolides & Looye, 1997b). This leads to the expectation that quality site experiences should encourage students to think critically.

Combining the Findings

Research question five asked how the findings of all cohort groups might contribute to establish a set of guidelines to benefit site learning quality. Considering the findings of both studies, the fol-

lowing is a list of eight nationally-based indicators of site quality:

- Provide the student with professional development
- Promote a challenging learning climate
- Use educational standards to generate student pride and competence
- Provide opportunities for students to practice their professionalism
- Help students develop occupational work ethic
- Expose students to practical problem solving
- Allow students a degree of independence
- Allow students to maintain an academic approach
- Encourage students to think critically

This list is general enough to provide useful guidelines of internship quality. The guidelines were developed by site supervisors, past internship/co-op students, and school coordinators — individuals who should know best as to what works in internships/co-ops. Readers should feel free to interpret them according to their local situations.

These guidelines might be applied in several ways. School coordinators may find them useful as a set of expectations when interviewing potential sites. Site personnel should be willing to commit to most of the guidelines before being seriously considered for hosting students. Once accepted by site personnel, they benefit students by communicating general expectations of the site and themselves. The communication loop is complete when all parties (students, site personnel, and school coordinators) share in the expectations of quality site learning. Finally, the guidelines can serve as the basis for a site evaluation instrument to be completed by the student upon completion of the experience. School coordinators should keep records of these evaluations as data for deciding to reuse a site. Ideally, using the guidelines will be more proactive and act as a screening tool to reduce the necessity of removing a site from the list. It is believed that the continued incorporation of these guidelines will help ensure high quality site experiences in internships and cooperative education.

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Despite differences in the definitions of cooperative education and internship, the findings in this paper refer to both programs, and the terms are used interchangeably here.

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