

Student Perceptions of Responsibility for Their Own Learning and for Supporting Peers' Learning in a Project-based Learning Environment

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While a common refrain among some educators is that many young adults lack personal responsibility for learning, little empirical research exists that examines how tertiary students perceive or operationalize this construct. This research investigated how 124 freshman engineering students perceive responsibility in terms of what responsibility means, its benefits, and the factors that contribute to their own and peers' learning. Students were surveyed in two project-based learning Communication courses. The survey sought to identify a) students' perception of responsibility for their own learning and for supporting the learning of their peers, b) particular aspects of the courses that contribute to students' development of responsibility, and c) the effect responsible behavior has on their own and peers' learning. Results indicate that most students: 1) believe that they have more responsibility for their own learning than the need to support their peers' learning; 2) can identify particular tasks and assignments that require them to be responsible for their learning; and 3) can recognize the benefits of being responsible for their own learning and for supporting their peers' learning, but do not always operationalize this understanding. Results are discussed and recommendations are made as to how to develop students' personal responsibility in team-based courses.

If perceptions matter, then the way students perceive personal responsibility and its impact on learning is an area that deserves special attention. This is because some educators argue that many young adults entering the university lack a sense of personal responsibility for their learning and are unaware of how their attitude and behavior impacts the learning of others. This has been linked to a number of detrimental consequences, including poor interpersonal communication, negative teaming experiences, and unproductive learning opportunities (Dallas & Hataaka, 2016; Deveci & Ayish, 2017a). In addition, the literature is rich in documenting how individual responsibility contributes to individual students' academic performance. However, there is a lack of research that explores students' responsible behaviors and the effect this behavior has on peers. There is also relatively little analysis of students' responsible behaviors in learning environments based on the principles of project-based learning (PBL). In order to address these and other issues, we believe it is necessary to better understand how students perceive personal responsibility.

Personal responsibility can be defined as "people[s] skill of] taking individual accountability for their decisions and actions, together with the outcomes they create and their impacts on others" (Linley & Maltby, 2009, p. 685). While many factors can influence how one perceives this complex concept, from culture to age, this definition fits the context of our study best because it takes into consideration that students are active agents of their own learning and their actions directly affect peers. This is especially true given that students in our study work with peers on

projects in a PBL environment. In this study, we investigate these issues with specific attention to freshman students' perceptions of their responsibility for learning and the need to support the learning of their peers. To this end, we first review the relevant literature related to the role of responsibility in the learning process. We then describe how responsibility manifests itself in PBL environments and whether or not gender plays a role in students' responsible behaviors. This is followed by a section explaining our teaching context and the rationale for the study.

The Relationship between Personal Responsibility and Learning

The relationship between personal responsibility and learning has been examined extensively (Bandura, 1993; Cook-Sather & Luz, 2015; Kohns & Ponton, 2006). Some researchers, for example, argue that a common trait among successful learners is that they take an active role in ensuring that their needs are met and sustained over time (Alghamdi, 2016; Setiyadi, Sukirlan & Mahpul, 2016). Others suggest that personal responsibility can lead to life-long learning by overcoming many of the challenges inherent in developing deeper and more meaningful learning opportunities over time (Deveci & Ayish, 2017a; Justo & DiBisio, 2006). Indeed, it has been shown that being responsible for one's learning is essential for academic, personal, and professional growth and success (Ning & Downing, 2012). For example, developing personal responsibility positively contributes to one's well-being, self-esteem (Cho & Hongsik, 2015; Deveci & Ayish, 2017b), and psychological health (Ruthig, Haynes,

Stupnisky & Perry 2009) by empowering individuals to take ownership over behaviors and actions.

Not surprisingly, many students readily acknowledge that they are responsible for their own learning and that such responsibility can lead to success in many aspects of their lives. Yet there is a seeming disconnect between what students recognize as important and beneficial and what they actually practice. As our previous study investigating the relationship between personal responsibility and interpersonal communication at our university suggests, while many students acknowledge the importance and benefits of being responsible for their own learning, they do not necessarily act in ways that demonstrate this understanding (Deveci & Ayish, 2017b). Although there are complex reasons for this, from a lack of experience with personal responsibility to feelings of inadequacy, a central factor, as Zimmerman (2002) notes, is that many students have not developed the ability to self-regulate. According to Zimmerman (2002), “Self-regulation refers to self-generated thoughts, feelings, and behaviors that are oriented to attaining goals” (p. 65). As a concept, self-regulation is inextricably linked to what it means to be responsible for one’s learning (Alvi, Iqbal, Masood, & Batool, 2016; Kizil & Savran, 2016). Unfortunately, for most, self-regulation does not just happen over time as one matures, but must be explicitly developed (Nejabati, 2015; Tuckman & Kennedy, 2011). Educators, in particular, can play a central role in teaching students how to self-regulate and, ultimately, be responsible for their learning (Nejabati, 2015; Tuckman & Kennedy, 2011; Zimmerman & Schunk, 2012). This can occur in a number of ways, including through structured opportunities such as PBL.

Project-based Learning and Personal Responsibility

Project-based Learning (PBL) has been adopted by a wide-range of educational institutions as an effective framework to help students develop soft-skills and real-world competencies (Allen, Donham & Bernhardt, 2011). As a student-centered, inquiry-based instructional model, PBL shifts the role of the instructor to that of a facilitator and the responsibility for learning to the student (Onyon, 2012). Learners then engage with an authentic problem that requires further research in a team-based environment (Murray & Summerlee, 2007).

Successful PBL is partly dependent on students taking personal responsibility for their behavior and learning (Abraham, Hassan, Ahlam Damanhuri, & Salehuddin, 2016; Murray & Summerlee, 2007). Studies suggest that PBL contributes to students assuming responsibility for their own learning and the need to help peers learn (Dochy, Segers, Bossche & Struyven, 2005; Savery, 2006). However, conflict

among team members stemming from poor communication, unequal work distribution, slacking, social loafing, and free-riding often arise when a team member does not take responsibility for his or her behavior (Brooks & Ammons, 2003; Jassawalla, Malshe, & Sashittal, 2008; Pieterse & Thompson, 2010). The consequences of such behaviors often lead to dysfunctional teams where infighting and overall poor performance negatively impacts the teaming experiences of members. Indeed, many students report that they prefer to work alone rather than in teams because of past negative teaming experiences (Pieterse & Thompson, 2010; Tucker & Abbasi, 2016). Self-regulation, therefore, plays an essential role in ensuring that team members contribute positively to team efforts and take responsibility for their learning (Dierdorff & Ellington, 2012; González-Fernández et al., 2013).

The Impact of Personal Responsibility

Personal responsibility has been shown to have a positive impact on learning (Macaskill & Denovan, 2013). When individuals take responsibility for their learning, for example, learning is enhanced because it is not left up to chance (Larmar & Lodge, 2014; Stupnisky, Renaud, Daniels, Haynes, & Perry, 2008). Such self-directed learning encourages individuals to develop a sense of agency that can help sustain their growth and development over time (Fishman, 2014). Indeed, “students recognise that the quality of their experience does not simply hinge on what they are provided with, but is also linked with their own effort and engagement with their courses” (Soilemetzidis, Bennett, Buckley, Hillman, & Stoakes, 2014, p. 38). This finding is particularly noteworthy because it suggests that students, rather than being passive recipients of knowledge, have a vested interest in their learning. In addition, as Anderson and Prawat (1983) posit, those who feel in control are more likely to take responsibility for their own learning. However, as Soilemetzidis et al. point out, in order to ensure that students are able to fulfill their inherent role in the learning process, “institutions have a vital responsibility to facilitate and ensure effort, engagement, interaction and active, and deep learning” (2014, p. 10). Such a joint effort and a sense of responsibility between students and institutions can help facilitate meaningful and sustained learning. Others have also found such partnerships effective and necessary for learning to thrive over time (Kuh, Laird & Umbach, 2004; Tinto, 2010).

Personal responsibility has also been shown to positively impact individuals psychologically, leading to a number of benefits, including greater self-esteem, improved relationships, and more effective interpersonal communication (Caprara et al., 2008; Di Giunta et al., 2013), as well as enhanced intrinsic work motivation and job performance (Humphrey, Nahrgang,

& Morgeson, 2007). While research has established the many benefits of personal responsibility across a number of domains, the way students perceive personal responsibility is less known and has received less attention, especially in our regional context.

Student and Teacher Perceptions of Personal Responsibility and Learning

Overall, little research exists that explores student or teacher perceptions of personal responsibility (Lauermann & Karabenick, 2014). Part of the issue likely stems from the way researchers attempt to measure personal responsibility. For example, as Lauermann and Karabenick (2013) point out, researchers tend to ask questions that are general in nature rather than specific to students or teachers. For example, rather than ask teachers to affirm, “I feel responsible for my students’ learning,” they are often asked to affirm, “I can help my students learn.” Consequently, as a number of researchers suggest, such studies do not offer insight into how students or teachers perceive personal responsibility (Biesta, Priestley, & Robinson, 2015; Eka, 2014). This is surprising given the recognition that the way one perceives personal responsibility directly affects their learning and the learning of those with whom they engage. This study aims to help fill the gap in this area.

Role of Gender on Personal Responsibility

Little research also exists in the area of gender and responsibility, especially in our regional context. While our experience teaching the same subjects to males and females on segregated campuses at our institution suggests that female students tend to be more personally responsible, research suggests that there is often little difference between the two genders (André and Mandigo, 2013). Given that the concept of personal responsibility is highly contextual and culturally bound, teasing out differences between genders is difficult. For example, Cesur and Ertas (2013) found that females were more responsible than males in planning what to study, adjusting how they learn, and correcting errors in their assignments, while Üstünlüoğlu (2009) reported that females demonstrated more responsibility in terms of participation related to autonomous language learning. However, other studies revealed that there are no statistical differences between gender and personal responsibility behaviors (Edgar, 2015; Severiens & Dam, 2012). Given that gender, at times, impacts responsibility points to the complexity of the relationships that exists between these two variables

and the need to better understand this relationship across domains.

Our Context, Rationale for the Study, and Research Questions

We conducted this study at the Petroleum Institute (PI)¹, an engineering university located in Abu Dhabi, the United Arab Emirates, which offers undergraduate and graduate degrees in various engineering disciplines. PI’s mission is to provide the oil, gas and energy sectors in the UAE with talented and well-balanced engineers to contribute to the country’s social and economic development. With this aim in mind, the university recruits nearly 500 students a year. Currently, it has approximately 1,960 graduate and undergraduate students (evenly split between males and females) on segregated campuses. All students are on full scholarships. The vast majority of students, Emirati nationals, also receive a monthly stipend if they maintain good academic standing.

Our study came about after our personal observation that many freshman engineering students enrolled in two required project-based learning (PBL) Communication courses seemed to lack a sense of personal responsibility for their learning or were unaware of the impact such a lack of personal responsibility has on the learning of their peers. It also builds on our earlier research that examined the relationship between personal responsibility and interpersonal communication (Deveci & Ayish, 2017b). Results from this study indicated that conflicts stemming from poor interpersonal communication often led to poor teaming and performance. We believe, therefore, that understanding how students perceive personal responsibility, especially within a PBL environment, offers the possibility of improving instruction and the learning and teaming experience of students. This is particularly important because PBL is a widely-used instructional model found across the globe. Although research offers insight into the relationship between personal responsibility and learning, less is known about how students perceive responsibility, as well as what students’ sense of responsibility is for supporting their peers’ learning. Part of our study sought to better understand these important aspects of personal responsibility and learning. With these points in mind, this research aims to answer the following questions:

¹ PI has merged with Masdar Institute and Khalifa University of Science and Technology since completing this study.

1. a. To what extent do students feel responsible for their own learning and for supporting their peers' learning?
 b. Do student perceptions change according to gender and course attended?
2. According to students, what aspects of their Communication course requires them to be responsible for their own learning and for supporting their peers' learning?
3. How do students perceive the effects of responsible behavior on their own and peers' lives?

Method

Participants

One hundred and twenty-four freshman engineering students participated in the study. Sixty-eight (55%) were COMM 101 students, while 56 (45%) were COMM 151 students. Twenty-one (17%) students were male, and 103 (83%) were female. Their ages ranged between 17 and 22, with a mean age of 19.

Data-gathering Instrument: Questionnaire on Responsibility (QRIC) for students

We designed this questionnaire to identify a) students' perception of responsibility within the domain of the two PBL courses at our university, b) particular aspects of the two courses that contribute to students' development of responsibility, and c) the effects of their responsible behaviors on their peers' learning (See Appendix).

The survey included Likert-type questions in which respondents ranked how they feel. The first section included two questions: "To what extent do you feel you are responsible for your own learning?" and, "To what extent do you feel you are responsible for supporting your peers' learning in COMM class?" The second section asked students to indicate the extent to which a list of tasks and assignments in their Communication course require them to be responsible for their own learning and for supporting their peers' learning. These included in-class writing examinations (IRWAs), an individual literature review/source summary, close reading assessments (CRAs), a team literature review, a proposal, team research report, team presentation, team

meetings, and personal development portfolio. The last section asked students to indicate the extent to which they agreed with a list of benefits of being responsible that apply to themselves and their peers.

The validity of the instrument was comprised of several stages. First, we drafted the questionnaire ourselves based on the literature on the topic as well as on our own teaching experience with a consideration of all relevant domains as suggested by Greco, Walop, and McCarthy (1987). In order to increase its validity, we also had two other faculty members in our department examine the instrument. The questionnaire was revised and improved based on their feedback.

We also computed the Cronbach Alpha test for each of the main sub-sections of the questionnaire sections 2 and 3). The Cronbach Alpha computed for the sub-section on factors contributing to students' feeling of responsibility for their own learning was found to be 0.803, while it was found to be 0.832 for factors contributing to their feeling of responsibility for their friends' learning. On the other hand, the Cronbach Alpha was 0.74 for the effects of responsible behavior on own learning, and 0.864 for the effects of responsible behavior on peers' learning. Collectively, these indicate that the questionnaire was reliable.

Analyses

We analyzed the data collected using IBM SPSS (Version 22.0) (SPSS Inc., Chicago, USA). Descriptive statistics including frequencies, mean, minimum, and maximum were used to describe the data. Students' t-tests were used to determine the significance levels of the participants' feelings that they are responsible for their own learning and for supporting the learning of their peers. A p-value of 0.05 was considered statistically significant.

Results

Part one of the first research question was related to the extent to which students perceived themselves as responsible for their own learning and for supporting their peers' learning in their Communication class. Table 1 shows the results of data analysis for this question.

Table 1
Students' Perceived Level of Responsibility for Their Own Learning and for Supporting Peers' Learning

	N=124					t	p
	Max	Min	\bar{x}	SD			
I am responsible for my own learning.	5	2	4.29	.68			
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.57	.91	7.0042	.0000	

p< .05

Table 2
Students' Perceived Level of Responsibility for Their Own Learning and for Supporting Peers' Learning According to Gender

	Male N=35				Female N=89				t	p
	Max	Min	\bar{x}	SD	Max	Min	\bar{x}	SD		
I am responsible for my own learning.	5	2	4.1	.73	5	3	4.3	.66	1.592	.0569
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.69	.9	5	1	3.53	.91	.8037	.2115

p < .05

Table 3
Students' Perceived Level of Responsibility for Their Own Learning and for Supporting Peers' Learning According to Course

	COMM101 N=96				COM151 N=28				t	p
	Max	Min	\bar{x}	SD	Max	Min	\bar{x}	SD		
I am responsible for my own learning.	5	3	4.3	.67	5	2	4.2	.75	.4224	.3367
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.54	.92	5	1	3.63	.9	.6445	.2602

Table 1 shows that the students' responses regarding how responsible they felt for their own learning ranged between a little (2) and a lot (5) with a mean of 4.29. This indicates that students have a fairly strong tendency towards taking responsibility for their own learning. However, a more detailed analysis of student responses revealed that only 42% of the students felt they were fully responsible for their own learning. Interestingly, a larger number of students (47%) thought they had a lot of responsibility (4) for their learning, while 13 students (10%) thought they had only a little responsibility for their learning. Only one student thought s/he had no responsibility. When these data are compared to students' thoughts on the extent to which they felt they were responsible for peers' learning, the average is 3.57. The difference between the two statements was also at a statistically significant level ($p=.000<.05$), indicating students' comparatively reduced tendency for accepting responsibility for supporting their peers' learning. The range of responses varying from 5 to 1 ($SD=.91$) also supports this finding. A more detailed analysis of student responses showed that four students (3%) believed they had no responsibility for their classmates' learning, seven students (6%) had little responsibility, and 43 students (35%) had an average amount. These findings suggest that students tend to perceive that they have more responsibility for their own learning than they do for supporting their peers' learning.

Part two of the first research question was related to student perceptions and if their perceptions changed

according to gender and course attended. Analysis of the data to determine if gender and course played a role in students' responses can be seen in Tables 2 and Table 3 below.

As can be seen in Table 2, the female students' responses regarding agency for their own learning ranged between 5 and 3 ($SD=.66$) with a mean of 4.3. The range in the male students' responses was greater with a standard deviation of .73 and a mean of 4.1. However, the difference between the two data sets was not at a statistically significant level ($p=.0569>.05$). In terms of responsibility for supporting peers' learning, the male students' average was slightly higher (3.69 vs. 3.53) with a similar range between responses. However, the difference was not statistically significant.

On the other hand, Table 3 shows that COMM 101 students' average rating for responsibility for own learning was slightly higher than that of COMM 151 students' (4.3 vs. 4.2) with a lower standard deviation (.67 vs .75). However, the t-test conducted to determine the level of significance between these data sets yielded a negative result ($p=.3367>.05$). On the other hand, COMM 151 students had slightly more tendency towards responsibility for supporting their peers' learning despite a lack of statistical difference between the student responses. The second research question asked respondents to consider what aspects of their Communication course required them to be responsible

Table 4
Factors Which Contribute to Students' Feeling of Responsibility for Their Own Learning and for Supporting Peers' Learning

Factors	For own learning				For supporting peers' learning				t	p
	Max	Min	\bar{x}	SD	Max	Min	\bar{x}	SD		
IRWA	5	2	4.44	.81	5	1	2.53	1.39	13.3559	.0000
Individual literature review	5	1	4.32	.83	5	1	2.5	1.36	-10.4002	.0000
CRA	5	1	4.1	1	5	1	2.5	1.4	10.5949	.0000
Team literature review	5	2	3.9	.75	5	1	3.94	.89	.3845	.3504
Proposal	5	2	4	.7	5	2	4.03	.76	-.4321	.333
Team research report	5	2	4.12	.75	5	2	4.19	.7	.7864	.2162
Team presentation	5	2	4.17	.77	5	2	4.12	.8	.4878	.313
Team meetings	5	1	4.1	.9	5	1	4.03	.92	-.4865	.3135

p < .05

for their own learning and for supporting peers' learning. The summary of results for this question can be seen in Table 4.

Table 4 shows the students' tendency to think that individual assignments (e.g., individual reflective writing assessments, individual literature reviews, and careful reading assignments) had a much greater effect on the development of personal responsibility for their own learning in comparison to supporting their peers' learning. There were marked differences between the averages for each of these factors (4.44 vs. 2.53, 4.32 vs. 2.5, and 4.1 vs. 2.5 respectively) with differences at statistically significant levels ($p = .0000 < .05$). On the other hand, the team assignments (i.e., team literature review, proposal, team research report, team presentation, and team meetings) received similar ratings related to their effects on student development through personal responsibility for their own learning or supporting peers' learning. The impact of these factors was evaluated to be relatively strong with the student ratings of > 4 for all factors except the team literature review which received a rating of 3.9 for own and 3.94 for peers' development of responsibility behavior. This similarity relative to the student thoughts on the effect of team assignments was supported by the lack of statistical significance between the scores ($p = .3504 > .05$, $p = .333 > .05$, $p = .2162 > .05$, $p = .313 > .05$, $p = .3135 > .05$ respectively).

When we analyzed which factors were considered to have the most effect on a student's or peers' learning, individual reflective writing assessments with a rating of 4.44 were perceived as contributing the most to a student's feeling of responsibility for their learning. On the other hand, the students' responsible behavior for the team research report

appeared to have the greatest role in students' responsible behavior for supporting peers' learning.

The third research question was related to how students perceive the effects of responsible behavior on their own and peers' lives. The results for this question can be seen in Table 5 below.

As is seen in Table 5, the strongest effect of students' responsible behavior on their own learning was related to academic performance and confidence, both of which received an average rating of 4.31. These were followed by skills development (4.3), productivity (4.25), positive reputation (4.2), and increased quality of work (4.2). The students' perception of these benefits for supporting their peers' learning was generally different. Although they agreed that their responsible behavior would have these effects on their peers' lives, they tended to be more neutral in their perceptions. The differences between the data sets were also statistically significant ($p = .0000 < .05$, $p = .0000 < .05$, $p = .0000 < .05$, $p = .0001 < .05$, $p = .0335 < .05$ respectively). Another positive effect of student responsible behavior on own and peers' lives was regarding relationships with peers. The students agreed that both their own and their peers' relationships would be enhanced if they adopted a responsible attitude in their learning. There was no statistical difference between the data for this benefit ($p = .0618 > .05$). Regarding the effect on relationships with students' own and peers' family members, the students did not seem to have a strong opinion. Despite this, a rating of 3.6 for the former in comparison to 3.05 for the latter indicated that this benefit was perceived to be more for their own lives. The difference was also at a statistically significant level ($p = .0000 < .05$). The students also appeared to be neutral about the effects on reduced stress and more free time for themselves and their peers (3.5 vs. 3.47, 3.33 vs. 3.2 respectively).

Table 5
The Effects of Being a Responsible Student

Effects	Own life				Peers' lives				t	p
	Max	Min	\bar{X}	SD	Max	Min	\bar{X}	SD		
Academic performance	5	2	4.31	.72	5	1	3.86	.84	4.5443	.0000
Confidence	5	2	4.31	.70	5	1	3.89	.82	-4.3945	.0000
Skills	5	3	4.3	.64	5	1	3.56	.86	4.540	.0000
Productivity	5	1	4.25	.76	5	1	3.87	.86	3.7629	.0001
Positive reputation	5	2	4.2	.71	5	1	3.76	.88	4.0344	.0000
Quality of work	5	1	4.16	.78	5	1	3.95	.94	1.839	.0335
Relationships with peers	5	2	4.2	.74	5	1	4.05	.82	1.5449	.0618
Relationships with family members	5	1	3.6	1.19	5	1	3.05	1.21	-3.7938	.0000
Reduced stress	5	1	3.5	1.21	5	1	3.47	1.05	-.167	.4337
More free time	5	1	3.33	1.3	5	1	3.2	1.11	.8951	.1857

$p < .05$

There was no difference between the data sets for these effects at statistically significant levels ($p = .4337 > .05$ & $p = .1857 > .05$).

Discussion

This study sought to better understand how students perceive responsibility for their learning and that of their peers in a Communication course that incorporates the principles of PBL. Results indicate that students see particular individual assignments—such as the in-class individual reading and writing assessments (IRWAs) and individual literature review, which is assigned at the beginning of the semester—to be very important to their individual learning. These tasks, however, are not considered important to the learning of their peers. On the other hand, other tasks—like the team research report, which is a collaborative project—are considered important for both their and their peers' learning. These findings, while not surprising, suggest that the way tasks and assignments are structured within a PBL environment matters if one essential goal of team-based projects is to develop in students a sense of responsibility for their own learning and support for their peers' learning. For example, students likely see the IRWAs as minimally important for peers' learning because they are written individually under testing conditions, scores are applied to the individual grade component of the course, and students' overall course grade is not directly impacted by how well or how poorly teammates perform on them. This is the case for other individual assignments, including the individual literature review. Understanding why students may

perceive such assignments as unimportant to peers' learning is important, because all assignments in our COMM courses are intended to integrate the principles of PBL. If some assignments are not helping students develop a sense of responsibility for their own learning and need to support the learning of their peers, then adjustments should be made to the way such assignments are structured, delivered, and assessed.

Results for part one of the first research question indicate that students believe that they have more responsibility for their own learning than they do for supporting their peers' learning. This finding is a bit unexpected given the context of our study. After all, Emirati culture is considered collectivistic, and students tend to exhibit behaviors and attitudes that mirror those associated with being part of a group rather than what we usually associate with individualistic cultures. One reason for this finding may be due to the nature of schooling in the UAE. Schools in the UAE tend to follow a more western (and, in particular, US) structure (Darwish & Huber, 2003; Palfreyman, 2014). This is particularly true at the tertiary level where most universities, like ours, follow a US model of higher education, including the use of English as a medium of instruction (Ayish, 2019; Findlow, 2006; Mouhanna, 2016). As Bielenberg and Gillway (2007) found, PBL is generally absent in K-12 education in the UAE, so most students entering our COMM classes as freshman have had little exposure to teaming, collaborative learning, or the principles behind PBL. Therefore, while it may be understandable why many students in our study do not necessarily see that they have a responsibility or even a vested interest in helping peers learn, this finding is a

reminder that tasks need to be carefully designed in order to help students develop a sense of responsibility. In this way, students can benefit the most from the essential features of PBL, including the need for individuals to take responsibility for their own learning while helping their peers learn.

Results for the second part of the first research question indicate that in terms of gender and course, COMM151 students had slightly more tendency towards responsibility for supporting their peers' learning despite a lack of statistical difference between student responses. This finding suggests that second-semester students with more PBL experience have developed a more nuanced understanding of their responsibility toward supporting peers' learning, which provides some support for the findings of previous research indicating that PBL is both compatible with student learning (the way some students learn) (Schmidt, Loyens, Van Gog & Paas, 2006) and the way some students perceive the learning environment (Peters, 2010). With an effective PBL environment, therefore, first-semester students should be able to develop their sense of responsibility even sooner, not only for their own learning, but also for supporting their peers' learning. This, in turn, should increase second-semester students' tendency toward responsibility. This is particularly true if students see that such responsibility is necessary for success (i.e., it can lead, for example, to a better final team research project and overall course grade).

The results for the second research question suggest that the extent to which students identify particular tasks and assignments that require them to be responsible for their own learning and support peers' learning depends on a number of factors, including the kind of task involved, whether the task is individual or group-based, and where the task falls during the semester. This finding echoes earlier research that suggests that student perceptions of tasks are influenced by the way a PBL environment is structured. Dochy et al. (2005), for example, found that "students value the key variables of the learning environment as powerful (i.e. enhancing learning)" (p. 41). It also suggests that some students may not necessarily see the interdependent nature of some of the tasks assigned to them, thus making the PBL environment less effective than it might otherwise be (Blumberg, 2000).

In our particular context, it may be that the way tasks and assignments are designed and introduced affects students' perceptions of those course components. For example, students identified the individual reflective writing assessment (IRWA) as having the greatest impact on how they perceive their sense of responsibility for their learning. Conversely, the team research report is cited as having the greatest

impact on how they perceive their sense of responsibility for supporting their peers' learning. While both assignments involve group work, whole class discussions, and reflection in preparation for completing the task, it is possible that the emphasis placed on the IRWA, from its name to the way students are individually assessed, makes most students see it as only relevant to their own learning. Yet, the intention of the IRWA is to evaluate how much students have learned about a particular communication skill (e.g., intercultural communication) in relation to and through their interactions with others in class. It is possible, therefore, that students, when responding to our survey, may have lost sight of the importance of classroom discussions on the seminar topics.

The results for the third research question suggest that students have a mixed view and, in some cases, even ambivalence toward the effects of responsible behavior on their own and peers' lives. This is important to note, because instilling personal responsibility for learning and helping students recognize the need to be at least somewhat responsible for helping peers learn is an essential PBL component and outcome (Hmelo-Silver, 2004; Savery, 2006) and one that moves beyond the classroom and into the area of life-long learning.

Given that students identified that increased academic performance, confidence levels, and improved relationships with peers would be enhanced if they adopted a responsible attitude toward their learning, this suggests that they are cognizant of the benefits of being responsible. Yet awareness alone is apparently not enough to ensure that students practice responsible behavior for their learning or support the learning of their peers (Kivela & Kivela, 2005). This finding highlights the importance of monitoring student behavior and attitudes carefully in a PBL environment and adjusting tasks and activities if necessary to help them operationalize this practice. Getting students to recognize the inherent value of being both personally responsible for their learning and being willing to help peers learn is an essential first step for success in a PBL environment. It is also important for developing students' lifelong learning skills. In a recent study, we found that students' lifelong learning skills are positively affected by skills of learning reciprocity (Deveci, 2019). Some of these skills include students' attitude towards sharing their knowledge with peers and helping them to learn, openness to different perspectives, work with people with similar learning needs, and willingness to change communication styles according to others' preferences. Collectively, these skills encourage students to assume active responsibility for their own learning, as well as for supporting their peers' learning.

Limitations and Recommendations for Future Studies

One key limitation of this study stems from the number of male participants. While we believe that we were able to adequately interpret the data from the twenty-one males (out of a total of 124 students) included in the study, we are cognizant that having a relatively equal number of male and female participants would likely have strengthened any gender comparisons. Another limitation is the lack of instructor perspectives. Studying how instructors perceive student responsibility for their own learning and for supporting the learning of their peers would add insight into our findings and lend a voice to key players in a PBL environment. A third limitation is the lack of data on participants' grades. Analyzing student and instructor perceptions of the impact responsibility for learning has on grades would deepen our understanding of this complex relationship. A fourth limitation is a lack of interviews. While this was a quantitative study, including a select number of carefully constructed interviews would offer insight into the thinking of some participants and help clarify questions a closed-item questionnaire cannot adequately answer.

Future research can examine how students perceive the role instructors play in their perspective of personal responsibility for their own learning and for supporting that of their peers. The influence an effective instructor plays on the learning of students is well established. How that influence impacts a students' sense of responsibility for learning within a PBL environment would add valuable information that could inform course design.

Additional research can also analyze how students perceive the impact their sense of responsibility has on their individual and team grades. Identifying any links between perceived responsibility and grades throughout the semester would be useful in helping students better understand the impact that being responsible for their learning or supporting the learning of their peers has on their performance.

Conducting a longitudinal study of students as they progress through their four years of undergraduate study to identify any particular factors that affect how they perceive responsibility for their own learning and for supporting peers' learning would also be very useful. This is particularly important in the Gulf region (and other parts of the world) where segregated campuses often exist. Findings can then be used to inform the design of freshman courses, like COMM 101 and COMM 151 in particular, to ensure that tasks and assignments are structured in such a way as to best support students' sense of responsibility for learning.

Finally, research can consider the role culture plays in how students perceive and operationalize personal responsibility for their own learning and its impact on

supporting peers' learning. Given that most universities in the Gulf region follow a western (and US in particular) framework, better understanding how local culture, which is collectivistic, interacts with a university's individualistic culture relative to responsibility and learning would be invaluable in offering insight into how best to meet student needs.

Conclusion

The findings from this research are particularly important since they offer insight into how students in our Communication courses perceive responsibility and its effect on their own learning and support for peers' learning in a PBL environment. While the majority of students believe that they have more responsibility for their own learning than they do for supporting their peers' learning, most students also recognize that being responsible for their own learning and supporting their peers offers benefits to all. Acting on this realization, however, is problematic, because only a minority of students actually operationalize what is, for many, just an awareness.

To get students to move beyond simply recognizing the importance of being responsible for their learning or for supporting the learning of their peers, it is necessary to provide them with concrete opportunities within a PBL environment to see how being responsible can lead to more meaningful learning and overall performance. One way to do this is to carefully evaluate tasks and assignments. Assignments should be structured in a way that promotes responsibility for learning. For example, we can assign tasks and research topics on the interconnectedness of student behaviors. We can also create individual writing examination questions that ask students to consider the effect their behaviors have on others. This can be incorporated into the intrapersonal communication seminar by focusing more on the emotional intelligence component of the unit.

In addition, rather than assume that students see the interrelated nature of assignments, making such connections explicit will help those students who do not feel a strong sense of responsibility for their own learning or for supporting their peers' learning. This can take the form of class discussions that help students understand how individual assignments are connected to other assignments and contribute to peers' overall learning. Framing such tasks in a way that captures the essence of the skill so that students more easily recognize its learning outcome has been shown to be effective (Mergendoller, Markham, Ravitz, & Larmer, 2006).

In the end, better understanding of how students perceive responsibility for their own learning, as well as the need to support peers' learning, is an essential first step in creating an effective PBL environment that contributes to student growth and development.

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Appendix

Questionnaire on Responsibility

This questionnaire is designed to better understand how students perceive responsibility for one's learning and for supporting peers' learning. Please respond candidly and know that your responses will be kept confidential. Thank you.

Section A—Demographics

- 1) Your age:
 3) Gender: Female Male
 4) Course: COMM101 COMM151
 5) Your nationality:

Section B—Responsibility

1. To what extent do you feel you are responsible for **your own** learning in COMM class?

Not at all	A little	Somewhat	A lot	Quite a lot
1	2	3	4	5

2. To what extent do you feel you are responsible for supporting **your peers'** learning in COMM class?

Not at all	A little	Somewhat	A lot	Quite a lot
1	2	3	4	5

- 3) Indicate the extent to which the following tasks and assignments in your Communication course require you to be responsible for **your own** learning.

	Not at all	A little	Somewhat	A lot	Quite a lot	N/A*
In class writing examinations (IRWAs)	1	2	3	4	5	N/A
Individual literature review/source summary	1	2	3	4	5	N/A
Reading assessments (CRAs)	1	2	3	4	5	N/A
Team literature review	1	2	3	4	5	N/A
Proposal	1	2	3	4	5	N/A
Team research report	1	2	3	4	5	N/A
Team presentations	1	2	3	4	5	N/A
Team meetings	1	2	3	4	5	N/A
Personal development portfolio	1	2	3	4	5	N/A
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1

* Not applicable/relevant

- 4) Indicate the extent to which the following tasks and assignments in your Communication course require you to be responsible for supporting **your peers'** learning.

	Not at all	A little	Somewhat	A lot	Quite a lot	N/A*
In class writing examinations (IRWAs)	1	2	3	4	5	N/A

Individual literature review/source summary	1	2	3	4	5	N/A
Reading assessments (CRAs)	1	2	3	4	5	N/A
Team literature review	1	2	3	4	5	N/A
Proposal	1	2	3	4	5	N/A
Team research report	1	2	3	4	5	N/A
Team presentations	1	2	3	4	5	N/A
Team meetings	1	2	3	4	5	N/A
Personal development portfolio	1	2	3	4	5	N/A
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1

5) Indicate the extent to which you agree with the following benefits of being a responsible student that apply to **yourself**.

Benefits	Completely disagree	Disagree	Neutral	Agree	Completely agree
Increased academic performance	1	2	3	4	5
Increased positive reputation	1	2	3	4	5
Improved relationships with peers	1	2	3	4	5
Improved relationships with family members	1	2	3	4	5
Improved skills	1	2	3	4	5
Increased confidence	1	2	3	4	5
Increased productivity	1	2	3	4	5
More free time	1	2	3	4	5
Reduced stress	1	2	3	4	5
Increased quality of work	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5

6) Indicate the extent to which you agree that **your** responsible behavior toward your peers benefits **their learning**.

Benefits	Completely disagree	Disagree	Neutral	Agree	Completely agree
Increased academic performance	1	2	3	4	5
Increased positive reputation	1	2	3	4	5
Improved relationships with peers	1	2	3	4	5
Improved relationships with family members	1	2	3	4	5
Improved skills	1	2	3	4	5
Increased confidence	1	2	3	4	5
Increased productivity	1	2	3	4	5
More free time	1	2	3	4	5
Reduced stress	1	2	3	4	5
Increased quality of work	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5

*Thank you for taking the time to help us better understand the important role responsibility plays in your learning.