

Peer Mentoring to Develop Psychological Literacy in First-Year and Graduating Students

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Abstract

First and final year undergraduate students have unique transition issues. To support both the transition of first-year students into the program and the transition of third-year students out of the program and into the workforce or further study, a face-to-face peer mentoring program was embedded into the first year psychology curricula at RMIT University, Melbourne Australia. The 34 peer mentors, third-year students taking a course on mentoring and career preparation, worked in pairs with small groups of first-year students ($n = 231$) in class time to help them develop study skills that underpin the first-year assessment tasks. This paper reports on a peer mentoring program designed to develop and consolidate psychological literacies of both first- and third-year students. Comparing pre-and post-tests, for first-year students, there was a significant increase in self-ratings across eight of the nine ability areas used to measure psychological literacy. In contrast, third-year mentors only showed significant change on the ability to understand basic psychological concepts. Correlational data reveal, for mentees, final course grades were significantly correlated with Domain-Specific Psychological Literacy, comprising knowledge and understanding of basic psychological concepts, scientific research practices, application of psychology, and ethics; for mentors, final course grades were significantly correlated with General Psychological Literacy, comprising cultural competence, critical thinking, problem solving, communication, and self-awareness skills. While first-year students indicated an overall positive experience with the mentoring program, the third-year mentors showed strong support for the program. The key implications are discussed.

Introduction: Student Lifecycle

The current paper reports on initial findings from a national project funded through the Australian Government Office for Learning and Teaching. The project involved collaboration between RMIT University and the University of Southern Queensland (USQ) and aimed to refine and evaluate a model of peer mentoring in undergraduate psychology. The transition in-transition out (TiTo) model that underpins this research is designed to support first-year students as they commence their undergraduate psychology studies and support third-year students as they exit their program and move on to either employment or further study.

To prepare graduating students for professional careers, consideration needs to be given to the notion of the ‘student lifecycle’, a “constellation of evolving identities, needs and purposes as students enter, move through and graduate from university” (Lizzio, 2012, p. 3). As shown in Figure 1, the student lifecycle outlines the series of transitions students undergo over time. The current paper will focus on how peer mentoring might support students commencing their studies and also graduating students. To this end, third-year mentors worked with small groups of first-year students during class time (RMIT) or online (USQ). The current paper reports only on outcomes for the face-to-face mentoring model implemented at RMIT University, Melbourne Australia. Specifically, it examines how the peer mentoring program helped facilitate the development of professional capabilities of first-year and third-year psychology students.

Insert Figure 1 about here

Peer Mentoring to Support Student Transition In-Transition Out

Commencing university can present various challenges for students. It may be the first time school leavers are required to demonstrate independent living and self-confidence.

Mature students may face additional challenges in having to juggle jobs, children, and studies. They might also be first in their family to attend university, and, therefore, be unfamiliar with the culture of higher education. All of these factors can each influence first year retention and attrition. The first year attrition rate for Australian students in 2010 was 15.6%, showing that the first year student experience is paramount to future academic success (Ross, 2011). The Australian Government has also established national targets to increase the population of Australians attaining university degrees. The aim is for 40% of 25 to 34 year olds to have attained a Bachelor's degree or above by 2025, and 20% of undergraduates to be from low socioeconomic backgrounds by 2020 (James, Krause, & Jennings, 2010). Thus, as the student population becomes more diversified, universities are paying increasing attention to the needs of first-year students, to help them remain in university and establish sound patterns of study and academic engagement (James et al., 2010). Peer mentoring provides a viable approach for helping first-year students successfully transition to university (Phillips, 2005), by addressing the academic, career-related, and psychosocial needs of first-year students (Terrion & Leonard, 2008).

Peer mentoring schemes involve experienced students supporting and guiding first-year students, helping them to integrate into university life. Such programs are related to enhanced satisfaction with the university learning experience, reduced anxiety, and increased academic performance (Chester, Xenos, & Burton, 2012; Fox & Stevensen, 2006; Phillips, 2005). Peer mentoring can help first-year students adjust to the university and achieve a sense of belonging (Martin, Collier, & Carlon, 2010). Phillips (2005) found that commencing students were three times more likely to consider leaving university during the first year if they were not offered peer support; this was particularly the case for students from non-traditional backgrounds. Peer mentors offer the type of discipline-specific support (e.g., study techniques, time and stress management, and academic writing techniques) shown to be

important for students to learn new skills (Phillips, 2005). Peer mentors also provide encouragement and peer support to facilitate student success and continuation at university (Long, Ferrier, & Heagney, 2006). In sum, peer mentoring provides support in both academic and psychosocial areas of university life for first-year students.

Learning from experience is fundamental to personal development (Lizzio & Wilson, 2004), and the needs of students evolve over the degree lifecycle. The current peer mentoring program was designed to promote development appropriate to students' needs, providing a framework for mutual support and development of both first-year and graduating students. According to Lizzio's (2012) lifecycle, final year students are less concerned with their 'student identity' and are more focused on negotiating their 'graduate and professional identity'. The peer mentoring program thus enables graduating students to apply key psychological skills learned in their undergraduate studies. Specifically, peer mentors learn to develop their professional capabilities by supporting first-year students to apply appropriate study skills and other capabilities relevant to a successful student development. In the process, third-year students can discard their student identities, expand their professional skills repertoire, and practise as psychology professionals.

Psychological Literacy

The current project also examined aspects of an emerging concept in psychology education, that of *psychological literacy*. Cranney and Dunn (2011) defined psychological literacy as the capacity to apply psychological principles adaptively to meet personal, professional, and societal needs. Being psychologically literate means not only understanding basic psychological principles, but also recognising how these principles influence the world around one (Burton & McDonald, 2011). Psychological literacy means an ability to combine self-awareness, fundamental scientific principles about human behaviour, and practical application of that knowledge to address key human issues. A psychologically literate person

is a critical and ethical thinker, someone who welcomes intellectual exchanges dealing with questions or problems linked with behaviour, and who is insightful and reflective about his/her and others' actions (Dunn, 2009).

McGovern et al. (2010) argued that psychological literacy involves the following abilities:

1. Understanding the basic concepts and principles of psychology.
2. Thinking critically.
3. Having problem solving skills.
4. Understanding scientific research practices.
5. Communicating well in many different contexts.
6. Applying psychological principles to personal, social or organisational problems.
7. Acting ethically.
8. Having cultural competence and respecting diversity.
9. Having self- and other-awareness and understanding.

Typically, first-year psychology courses are designed to enable students to understand the major concepts, methods, and theoretical perspectives in psychology; learn about the research process; and build skills in writing essays and research reports in standard format. There is a particular benefit to first-year students if they develop their psychological literacy (Cranney, Morris, Spehar, & Scoufis, 2008). The difficulty of transitioning to academic life is a key reason that psychological literacy should not only be a core graduate outcome at the completion of a psychology undergraduate course, but as well, a process that commences when students begin their first classes. Burton and McDonald (2011) argued that a principal aim of first year psychology should be to lay the foundation for students to become successful lifelong learners. It is important to note that the core skills needed to develop psychological literacy are the same skills that will give students a better chance of achieving

academic success generally. In particular, the skills of critical thinking and problem solving are important, not just for students to employ as they continue their academic journey in subsequent years, but also for them to develop the self-awareness and resilience needed to cope with the challenges of the first year transition.

Much of the study undertaken in the four-year undergraduate psychology degree is aimed at teaching students to think as professional psychologists. This outcome requires a thorough understanding of how people learn, and how they evaluate and use information. Students also need to be aware of the cognitive processes they bring with them that might have an impact on their critical-thinking and problem-solving skills. To be good psychologists, individuals need to be able to communicate well in a wide range of settings; speak and write clearly, and understand how communication breakdowns can occur. The current peer mentoring program provided an opportunity for third-year psychology students to apply key communication skills while supporting first-year students to make a successful first year transition. The program is closely aligned with the 'learning through teaching' approach which suggests the best way to understand material is to teach it to someone else (Elmendorf, 2006; Mynard & Almarzouqi, 2006; Ramaswamy, Harris & Tschirner, 2001). In the current program, the third-year mentors were encouraged to master knowledge and understanding of key psychological content and to develop their leadership skills by facilitating small group discussions (Mynard & Almarzouqi, 2006).

More broadly, the current project evaluated a peer mentoring program intended to develop psychological literacy in both first-year and graduating students. The program was designed to encourage first-year students to apply key principles, and to gain skills that can be transferred to future academic studies and to life in general. In the program, first-year and graduating students worked in pairs or in small groups and were able to practise key

psychological skills. The process encouraged both cohorts to reflect critically on their learning experiences during the program.

Method

Participants

All 276 first-year students at RMIT University participated as mentees in the TiTo program. A total of 231 first-year students (166 females, 65 males) provided pre- and post-test data (response rate = 83.7%). Thirty-four third-year psychology students (23 females, 11 males) participated as peer mentors. All students were enrolled on-campus. The average age for the first-year students (peer mentees) was 21.99 years ($SD = 5.27$); the average age for the third-year students (peer mentors) was 21.68 years ($SD = 2.64$). The demographic characteristics of both the mentee and mentor groups were representative of the undergraduate psychology population at this metropolitan Australian university.

Measures

A self-report survey was developed for the larger TiTo project. However, only those measures relevant to the current paper aims are discussed here.

Psychological literacy.

At the beginning of the first semester (pre-survey) and again at the end of the semester (post-survey) both first-year students and third-year peer mentors self-rated their competencies across the nine capabilities outlined by McGovern et al. (2010) using a 4-point scale ($1 = non-existent$, $2 = poor$, $3 = reasonable$, $4 = excellent$). Because the scale was developed for this study, the suitability of the data for factor analysis was assessed. Inspection of the correlation matrix revealed several coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .79, exceeding the recommended value of .6 (Pallant, 2007). Furthermore, a significant value was obtained for Bartlett's Test of Sphericity ($p < .001$), further supporting the use of factor analysis.

Principal Components Analysis (PCA) revealed two components with eigenvalues exceeding one, explaining 39.45% and 17.21% of the variance, respectively. Inspection of the scree plot confirmed the presence of two factors, with a clear break following the second component.

Oblimin rotation was performed to aid in the interpretation of the two components. The selection of Oblimin rotation (as opposed to Varimax rotation) is consistent with Pallant's (2007) recommendation, based on the correlation between the two factors ($r = .35$). The rotated solution revealed the presence of a simple structure, with both components showing a number of strong loadings and all variables loading substantially on only one component. The results of the analysis supported two subscales. The General Psychological Literacy (items 2, 3, 5, 8, and 9) subscale reflected the demonstration of cultural competence, critical thinking skills, problem solving skills, communication skills, and self-awareness. The Domain-Specific Psychological Literacy (items 1, 4, 6, and 7) subscale reflected the knowledge, understanding, and application of basic psychological principles, including scientific research practices, and ethics. Table 1 outlines the two psychological literacy subscales.

Insert Table 1 about here

Reliability analyses were then conducted on each subscale. General Psychological Literacy demonstrated adequate internal consistency ($\alpha = .78$); all items appeared worthy of retention, with item-total correlations exceeding the recommended value of .30 (Pallant, 2007). Similarly, the Domain-Specific Psychological Literacy subscale revealed adequate internal consistency ($\alpha = .77$), with no items warranting removal.

Peer mentoring evaluation.

Three questions were administered to evaluate mentee and mentor perceptions of the peer mentoring program, as follows:

1. Peer mentoring helped the quality of my work.
2. Peer mentoring helped me feel I belong.
3. I enjoyed peer mentoring.

Academic performance.

Academic success was measured by grades achieved in the courses relevant to the peer mentoring. Marks were recorded as scores out of 100.

Procedure

The research components of the TiTo project were embedded in the assessment tasks for first-year mentees and third-year mentors. All students were provided with the option to withhold their data from the research. First-year students were offered peer mentoring in their weekly tutorial time; third-year mentors participated in TiTo as an option in a third-year capstone course. The survey data were collected online via a secure website. The total testing time for the full survey was approximately 1 hour. Testing was carried out over a 4-month period. The pre-survey was completed in the first 3 weeks of the first semester; the post-survey was completed in the final 3 weeks of the semester.

Results and Discussion

Table 2 compares the means and standard deviations (pre- and post-surveys) for peer mentees and mentors across the nine ability areas used to measure psychological literacy, both at the beginning of the semester (pre-survey) and at the end of semester (post-survey). At post-test, the first-year students reported significantly higher knowledge of basic concepts/principles in psychology, knowledge of scientific research practices, problem-solving skills, critical thinking, understanding of communicating across varying contexts, ability to apply psychology to personal, social or organisational issues, cultural competence,

and ability to act in accordance with psychology ethics ($p < .05$). Although trending in a positive direction, self-awareness was the only ability area not to show a significant positive change over time.

Insert Table 2 about here

In contrast, for the third-year peer mentors, a significant difference at post-test was only evident for knowledge of basic concepts and principles in psychology ($p < .05$). Although typically trending in the positive direction, no other ability area showed a significant difference at post-test ($p > .05$).

The degree of change observed in the two subscale scores for psychological literacy (General Psychological Literacies and Domain-Specific Psychological Literacies) over time (pre-survey versus post-survey) were correlated with the two measures of peer mentoring engagement (attendance and preparation). Table 2 shows the results for the first-and third-year students.

As shown in Table 3, for first-year students, no significant relationships were observed for the measure of change in Domain-Specific Psychological Literacies (i.e., knowledge and understanding, scientific research skills, application of psychology, and ethics) and the measures of peer mentoring engagement (i.e., attendance and preparation). However, significant moderate to weak relationships ($p > .05$) were evident between both measures of peer mentoring engagement and the measure of change in General Psychological Literacies (i.e., cultural competence, critical thinking, problem solving, communication, and self-awareness). This finding is consistent with expectations, as third-year mentors focused on helping first-year students develop general study skills in the mentoring sessions.

Insert Table 3 about here

Contrary to findings evident in the first-year sample, no significant relationships were observed for peer mentors – neither measure of peer mentoring engagement correlated with either measure of change in psychological literacies. This finding might be explained by the third-year students having established proficiency across all nine ability areas used to measure psychological literacy at the pre-test; at the post-test, the mentoring process helped only to deepen their knowledge and understanding of basic psychological concepts.

The relationships between academic achievement (final course grades) and the two post-test measures of psychological literacies were examined. First, for the peer mentees, a significant weak to moderate relationship ($r = .21$, $p < .05$) was observed between final course grade and the post-test measure of Domain-Specific Psychological Literacies (i.e., knowledge and understanding, scientific research skills, application of psychology, and ethics). This relationship is in the expected direction – first-year students have some awareness of the psychological knowledge and skills they have developed and/or applied over the course of the first semester, and this appears related to their overall academic performance in the first year psychology course. No relationship was evident between final course grade and the post-test measure of General Psychological Literacies. Conversely, for peer mentors, a significant moderate relationship ($r = .36$, $p < .01$) was observed between final course grade and post-test measure of General Psychological Literacies (i.e., cultural competence, critical thinking, problem solving, communication, and self-awareness). The peer mentoring process was designed to strengthen third-year students' team-working skills. The mentors applied key communication and problem solving skills when working with the first-year students and this process enabled them to gain confidence in their mastery of general psychological concepts and skills.

Together, these findings suggest that gains in psychological literacies are related to academic success. Specifically, the peer mentoring program appears to help develop Domain-Specific Psychological Literacies in first-year students and General Psychological Literacies in third-year psychology students. Mentors help their peer mentees to master the study skills that underpin first-year course assessment. This peer mentoring approach helps new students to focus on gaining a deeper understanding of psychological skills (including scientific research skills), and to consider aspects of application and ethics. In contrast, the peer mentoring program provides peer mentors with the opportunity to demonstrate cultural competence while working with diverse groups of peer mentees, and to put into practice effective communication and problem solving skills. Such findings provide a useful direction forward, suggesting that undergraduate curricula should focus on developing these general competencies in graduating students. Additional insights about the benefits of the peer mentoring process are provided through the program evaluation data.

The perceived effectiveness of the peer mentoring program was then examined. Figure 2 shows the results for quality of work. Although both peer mentees and peer mentors largely agreed that peer mentoring helped the quality of their work, the mentor group showed stronger support for the program, with 85% of mentors agreeing or strongly agreeing with this item compared to 59% of the first-year students.

Insert Figure 2 about here

Similarly, while both first-year students and peer mentors largely agreed that peer mentoring helped them feel that they belonged, the mentor group showed stronger support for the program. As shown in Figure 3, 94% of mentors agreed or strongly agreed with this item, compared to 61% of first-year students.

Insert Figure 3 about here

Finally, in terms of overall enjoyment of the peer mentoring program (see Figure 4), the mentor group again showed strong support for the peer mentoring program. All peer mentors either agreed or strongly agreed that they enjoyed mentoring. Although the majority of peer mentees also indicated that they enjoyed the program, more variation was evident, with 70% either agreeing or strongly agreeing that they enjoyed the program.

Insert Figure 4 about here

Conclusion

Overall, participants indicated that the mentoring program was a positive learning experience. The mentees reported positive change on eight of the nine psychological literacy abilities over the course of the semester. The embedded nature of the TiTo peer mentoring program is important to ensure that all first-year students have access to mentoring and its potential role in supporting the first year student experience. As such, the TiTo program is an illustration of the transition pedagogy proposed by Kift (2009), with its focus on the curriculum as the site for inspiring, supporting, and connecting students.

The final-year mentors, whose psychological literacies were already more highly developed, also demonstrated positive change on most abilities, with a significant increase in psychological knowledge and understanding observed at post-test. The lack of statistically significant change on the other eight abilities could be a result of the relatively small sample size, the relatively high scores at pre-test on most abilities or the relatively short interval between the pre- and post-tests. The significant change in knowledge and understanding of

basic concepts and principles in psychology that was reported is not surprising, given the focus of the mentoring program on developing the generic study skills that underpin a core assessment task in the first year course. In supporting the learning of their mentees it is likely that the mentors consolidated and enhanced their own knowledge. Indeed, previous research recognises that peer learning is an effective way to develop a deep understanding of content and can potentially enhance mentors' confidence and leadership skills (Mynard & Almarzouqui, 2006). It is of note that 85% of mentors believed participation in the program had improved the quality of their work.

The mentoring program was positively evaluated by participants, with third-year mentors in particular noting its perceived value for improving the quality of their work and enhancing connection. As such, mentoring appears to have face validity as a method for engaging students at different stages in the student lifecycle. New students are managing their integration into the discipline and university life, working out the psychological literacies that will be the basis of their program. Final year students are managing decisions about work or further study and making choices about how to use the psychological literacies consolidated during their undergraduate psychology program. The real test of the TiTo model will be in a longitudinal assessment, evaluating the impact of mentoring on graduates as they use their psychological literacy in practice.

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Associate Professor Andrea Chester, RMIT University, first year coordinator and Deputy Head, L&T, School of Health Sciences. In 2008 Andrea received an ALTC Citation for Outstanding Contributions to Student Learning for sustained commitment to the innovative application of educational technology and for fostering a related research community. In 2007 Andrea was awarded the RMIT Teaching Award, Category A: Biological Sciences, Health and Related Studies. She won the Students' Choice Teaching Award in the College of Science, Engineering and Health in 2006 and has been nominated by her students each year since. Andrea is regularly acknowledged by the College of Science, Engineering and Health for courses in the "Top 50 Courses" and "Top 15 Large Class Courses" lists.

Dr. Sophie Xenos, RMIT University, third year coordinator. In 2008, the psychology peer mentoring team which Sophie lead received a certificate of achievement in the RMIT Teaching Award Category C: Programs that Enhance Learning – First Year Experience. Sophie is regularly acknowledged by the College of Science, Engineering and Health for courses in the “Top 50 Courses” list.

Dr Karen Elgar, RMIT University, TiTo project manager. Karen teaches into first-year and third-year psychology courses at RMIT University. Her recently completed PhD thesis was on the topic of peer mentoring and Karen remains dedicated to supporting the first year student experience.

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Table 1

Pattern and Structure Matrix for Principal Components Analysis with Oblimin Rotation of Two Factor Solution of Psychological Literacy Items

Items	Pattern coefficients		Structure coefficients		Communalities
	1	2	1	2	
8. Cultural competence	.79	-.17	.73	.11	.56
6. Critical thinking	.75	.04	.77	.30	.59
7. Communication	.73	.11	.77	.36	.60
9. Self-awareness	.69	.01	.69	.25	.47
3. Problem-solving	.63	.12	.67	.34	.46
1. Knowledge and understanding	-.13	.88	.18	.83	.71
5. Ethics	-.001	.75	.26	.75	.57
6. Scientific research	.06	.71	.31	.73	.54
4. Application	.18	.70	.43	.76	.61

Note. Major loadings for each item are in boldface.

Table 2

Repeated Measures t-test Scores for Psychological Literacy across First-Year Students and Mentors

	FY Students				Mentors			
	Pre	Post	<i>t</i> (230)	<i>p</i>	Pre	Post	<i>t</i> (33)	<i>p</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
Knowledge and understanding	2.89(.60)	3.22(.54)	-7.07	<.001	3.28(.55)	3.44(.50)	-2.24	.03
Scientific research	2.48(.71)	2.88(.51)	-8.60	<.001	3.09(.57)	3.21(.64)	-.94	.35
Problem-solving	2.98(.63)	3.18(.53)	-4.62	<.001	3.29(.58)	3.50(.56)	-1.87	.07
Critical thinking	2.87(.69)	3.17(.61)	-5.43	<.001	3.18(.63)	3.24(.50)	-.53	.60
Communication	2.87(.69)	3.13(.56)	-4.88	<.001	3.21(.54)	3.21(.54)	-1.28	.21
Application	3.02(.72)	3.38(.55)	-7.26	.04	3.35(.69)	3.44(.61)	-.68	.79
Cultural competence	3.16(.69)	3.29(.61)	-2.68	.01	3.38(.60)	3.44(.56)	-.53	.60
Ethics	2.83(.77)	3.23(.58)	-7.46	<.001	3.32(.64)	3.38(.65)	-.63	.54
Self-awareness	3.30(.64)	3.38(.60)	-1.91	.06	3.56(.61)	3.52(.56)	.26	.80

Table 3

Relationships between Peer Mentoring Engagement and Psychological Literacy Changes in First-Year Students

Measure	1	2	3	4
1. Change in General PL	-	.35*	.24*	.21*
2. Change in Domain-Specific PL		-	.01	.04
3. Attendance at PM sessions			-	.54*
4. Preparation for PM sessions				-

Note. PL = Psychological Literacy; PM = Peer Mentoring.

* $p < .01$

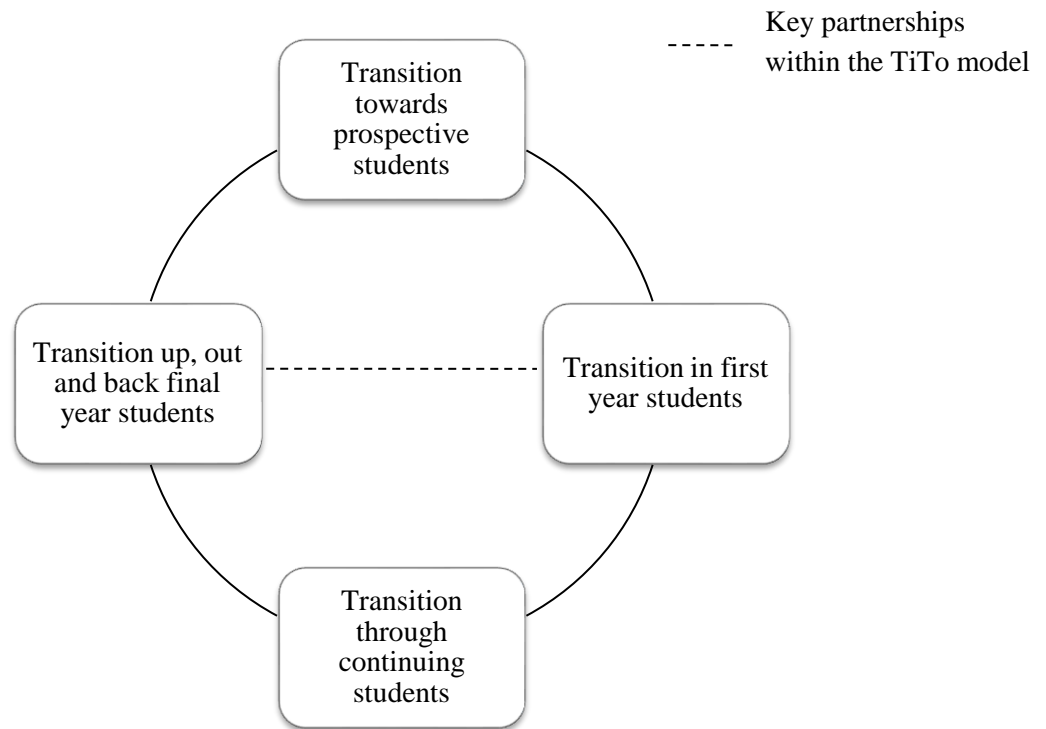


Figure 1. The student lifestyle framework in the context of the Transition in - Transition out (TiTo) model of peer mentoring. Adapted from “The Student Lifecycle: An Integrative Framework for Guiding Practice” by A. Lizzio, 2012.

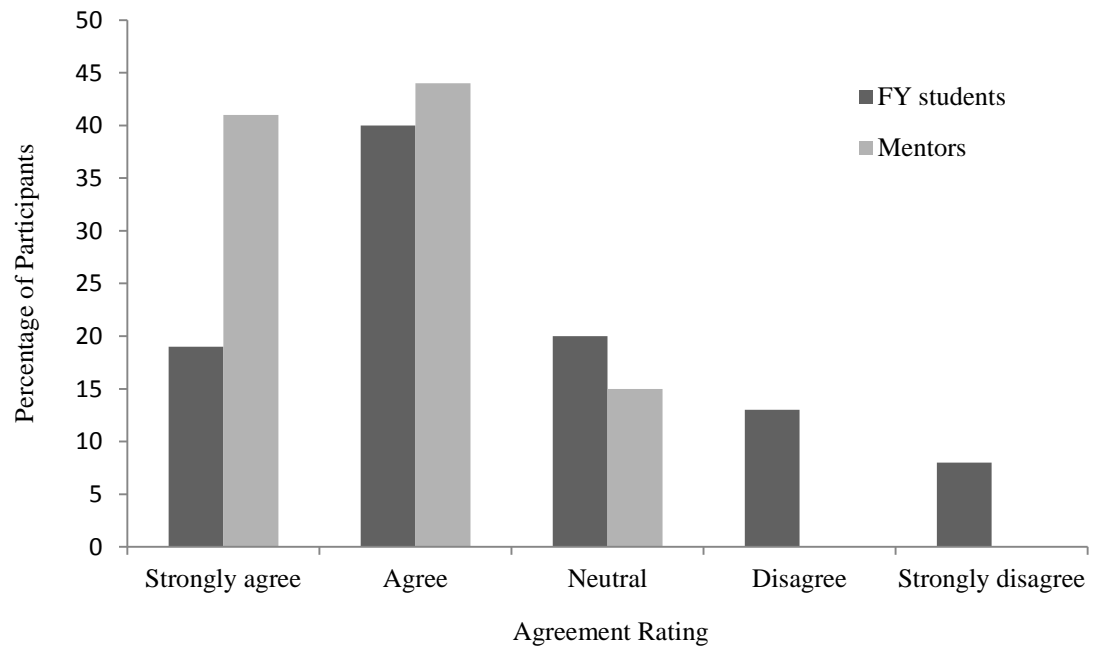


Figure 2. Percentage of first-year student and mentor agreement that peer mentoring helped the quality of their work.

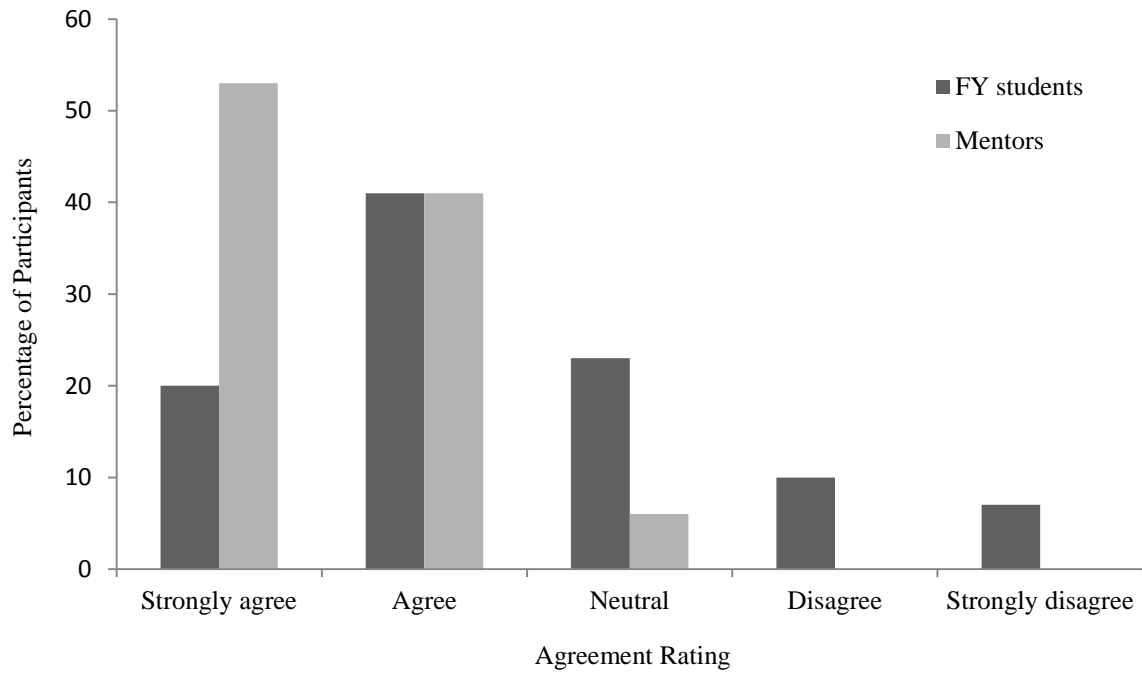


Figure 3. Percentage of first-year student and mentor agreement that peer mentoring helped them feel they belonged.

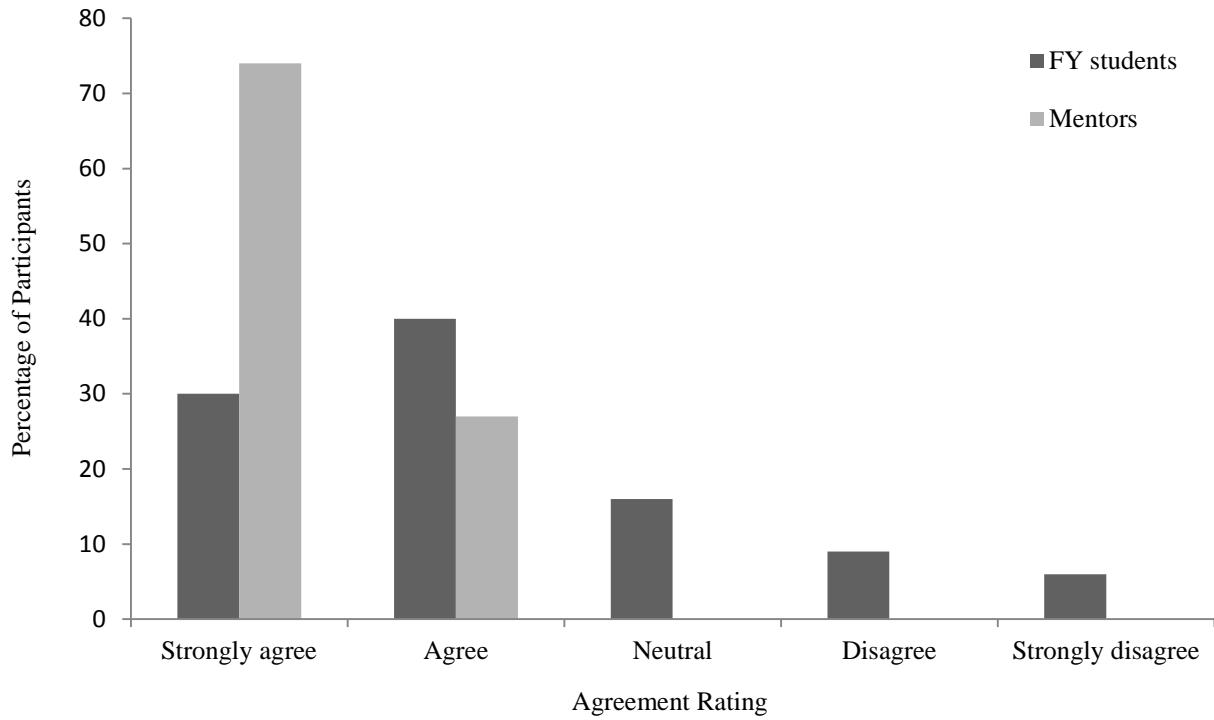


Figure 4. Percentage of first-year student and mentor agreement that peer mentoring was enjoyable.