

Building perceived self-efficacy in new tertiary healthcare students by teaching transferable skills: The Transition 2 University (T2U) program.

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Abstract

New university students not only need to learn a wide range of skills, but also have to gain the belief that they can succeed (perceived self-efficacy). This paper describes the evaluation of a transition program designed to teach transferable skills at the beginning of university study. Importantly, we show that this program improved students' perceived self-efficacy during university transition through the provision of authentic mastery experiences and social persuasion. We also show that the improved perceived self-efficacy of program participants persisted until at least the end of the first semester of study. Finally, we demonstrate that participants felt the transition program improved their overall transition experience.

Introduction

All students enter university with a range of prior knowledge, skills and beliefs, which can significantly influence how they interpret and acquire new information. However, the transferable skills students are required to demonstrate in an academic environment (such as academic writing, analytical thinking, and research skills) are often significantly different from those in which they were previously competent. One principle that underpins successful university transition is the need for students to quickly acquire the skills necessary to succeed in a tertiary academic environment. Transitioning students also need to be aware of, and be able to access, peer- and staff-based support systems that improve their learning, empowering individual students to seek help later in their studies when required (Tinto, 1993, 2012). The increased emphasis on student autonomy and self-directed learning that is a feature of university settings can lead to first-year students being under-prepared for the rigours of tertiary academic study. As a result, certain groups of students may not successfully transition into university, often leading to significant attrition by the end of the first year of study.

Transitioning students not only need to learn new skills, but also have to gain the belief and confidence that they can succeed at a tertiary level of study. This can be defined as gaining perceived self-efficacy (believing in your own capability to succeed with the skills you possess, Bandura, 1997). Providing an opportunity for students to master a particular skill or task is considered the most powerful method of building a strong sense of self-efficacy (Bandura, 2012; van Dinther, Dochy, & Segers, 2011). Additionally it has been shown that social persuasion, where students learn from realistic and reliable feedback from others, is also effective in building perceived self-efficacy (Bandura, 2012; Maddux & Gosselin, 2012). Several studies have shown that a student's self-efficacy is a key feature of successful

transition, and can significantly influence motivation, persistence, self-regulation, time-management, the use of metacognitive strategies and academic performance (Bassi, Steca, Delle Fave, & Caprara, 2007; Bouffard-Bouchard, 1990; Bouffard-Bouchard, Parent, & Larivée, 1991; Chemers, Hu, & Garcia, 2001; Fenollar, Roman, & Cuestas, 2007; Hsieh, Sullivan, & Guerra, 2007; Lent, Brown, & Larkin, 1984; Linnenbrink & Pintrich, 2003; Pintrich & De Groot, 1990; Schunk, 1991, 2003; van Dinther et al., 2011; Zimmerman, Bandura, & Martinez-Pons, 1992).

Further research is needed to design innovative programs that improve the transition experience of students into the university environment. In this paper we propose that a transition program that builds transferable skills at the beginning of university study can effectively build students' perceived self-efficacy.

The Transition 2 University (T2U) program

At our University, Learning Skills Advisers and Librarians have collaborated with academic staff from the School of Biosciences for several years to incorporate transferable skills training into the curriculum. Having identified the need for transitioning nursing students to quickly develop new academic skills, we developed a week-long transition course - the Transition 2 University (T2U) program. We wanted to improve students' transferable skills from the very beginning of their studies, so the T2U program was delivered in the week prior to the University's first-year orientation week. While attendance was optional, all new nursing students were encouraged to participate, irrespective of their entry pathway into their nursing degree. In total, 117 students registered and participated in the program.

The T2U program included a series of transferable skills workshops conducted during the morning of each day, followed by bioscience content-based workshops each afternoon. While skill confidence and knowledge development were also likely to occur during the afternoon sessions, this paper will focus on the student development which took place during the morning sessions. The transferable skills workshops covered a range of generic skills including study skills, learning styles, topic analysis, brainstorming, conceptualising a research question, locating and evaluating information, referencing, academic integrity, academic writing, oral presentations and reflective practice. We considered these skills as transferable because they were applicable across different units in the students' overall course and impacted on future employability. Workshops were conducted in an interactive environment facilitated by a Learning Skills Adviser and/or a Librarian. Students were provided with daily learning activities, a workbook, and access to university computer facilities. In order to promote classroom discussion and participation, sessions were organised so that the staff member-to-student ratio was no more than 1:25. Each day's learning activities were designed to build upon the previous day's information. Students were also provided with time at the start of each day to discuss the previous day's learning activities.

On the first day of the program each student was required to log in to the University's Virtual Learning Environment (Moodle). A unit had been created specifically for the T2U program, and structured similarly to the academic units students would experience during their studies. Students were given a few minutes to explore the site, and then needed to download a copy of the unit guide for T2U. This guide included information about presenters, logistics and assessments tasks. In order to develop mastery of the transferable skills mentioned earlier, we decided to simulate an authentic assessment experience that students would encounter in their studies. Students were given a choice of assignment topic on which they could focus for the

duration of the program. Topics selected for the T2U program related to key aspects of the nursing course and included heart disease, cancer, mental health, allergies, antibiotic resistance and complications during pregnancy and birth. Students indicated their preferences and were organised into small groups of 3 to 4 students around their chosen topic. The rest of the day's workshop allowed students to analyse their topic, determine the steps in the assessment process, brainstorm keywords to search for further information about their topic and conceptualise a research question. While time was not allocated in the program to discuss study approaches for different learning styles, we wanted students to think about the ways in which they learn. Consequently, on the first day of the program students were asked to complete a learning styles questionnaire (freely available at <http://www.vark-learn.com/>) as a homework activity. Each day of the program students were also asked to reflect on the day's activities and learning using a reflective template (see Pretorius & Ford, 2015).

On the second day of the program students were guided through academic database searching to find relevant articles for their chosen research question. This was followed by a discussion about the skills associated with effective reading and note-taking at university. Finally, students were provided with time to take notes from the academic articles they found in their database searching, using a note-taking template that was provided in their workbook. We wanted students to practice the concept of referencing, so the homework activity for the second day guided students through the principles of demonstrating academic integrity in their work, as well as the APA 6th referencing style.

On the third day of the program, students were guided through the process of turning their notes into a one-paragraph summary that had to include an in-text citation and be accompanied by a full APA 6th-formatted reference. Each group of students then combined their individual summaries into one annotated bibliography document, before synthesising their findings to add an introduction, conclusion and reference list. In order to write an effective introduction and conclusion, time was allowed in class to discuss the characteristics of academic writing. Once students had completed their group annotated bibliography, it was submitted electronically or by hard copy. The homework activity for the third day was designed to consolidate the knowledge from the day's workshop and prepare for the next day's learning activities. Students were provided with a sample text and were required to identify the errors in the academic writing style.

The fourth day of the program included further discussion about academic writing, with particular attention paid to editing and proofreading. Submissions from the previous day were released to another group for peer review. This allowed students to critique each other's work and learn from each other's mistakes. Students were then allowed time to develop their three minute oral presentations due to be delivered on the final day. Each group was given the choice of presenting the findings from their annotated bibliography, their personal reflections on the week, or a combination of both, using a slideshow or a poster. The homework time on day four was set aside to allow students to prepare for their presentation, to help build confidence and to highlight the importance of preparation for effective presentations.

The final day of the program consisted of two components. During the first part of the workshop, students were guided through the concept of reflective practice, with reference to the reflective journals completed each evening during the program. We have previously shown that our approach to teaching reflective practice in the T2U program allowed students to explore reflection through self-discovery and peer discussion (Pretorius & Ford, 2015). We also showed that this approach allowed students to recognise and value reflection as a

learning tool (Pretorius & Ford, 2015). The second part of the day was allocated to the group oral presentations as a conclusion to the program. Due to high levels of anxiety about the public speaking task, this activity focussed on participation and experience, not content.

Method

Research aim

In this study we aim to evaluate the effectiveness of the T2U program in improving perceived self-efficacy in program participants. Specifically, the research questions (RQs) to be explored are:

1. Can the T2U program improve students' perceived self-efficacy at the beginning of their university studies?
2. Can the T2U program improve students' perceived self-efficacy until the end of the first semester?
3. Can the T2U program improve students' overall transition experience?

Research design

A mixed-method research design was used, incorporating both qualitative and quantitative data at different points during the T2U program and at the end of the semester. This design allowed us to use a variety of data-gathering procedures to describe and interpret the complex and multi-faceted perceptions of students. The design, data collection and analysis procedures were approved by the University's Human Research Ethics Committee. An overview of the research processes used and their relationship to the RQs are provided below.

Qualitative data collection and analysis

We collected and analysed students' qualitative responses to pre-determined open-ended questions at the start ($n=95$) and end ($n=78$) of the T2U program. In order to address RQ1 and RQ3, students were asked to highlight their expectations of the T2U program by responding anonymously to the following statement: "*What do you hope to gain from the Transition to University program this week?*" This question was left intentionally open-ended as we wanted students to identify their expectations independent of any guidance provided by the teachers. The question served to prompt students to consider their own perceived levels of self-efficacy with regards to the skills they felt were most important at university. It was also important to understand what students thought they had learnt at the end of the T2U program. As such, on the last day of the program students were asked to reflect on the program in response to the following reflective prompt:

Write a paragraph-long reflection about the Transition to University program. Try to capture the following: a brief description of what you actually did during the week, an identification of the most important thing you learnt during the week, and a reflection on how you think this program will influence you in the future.

While students were provided with a semi-structured question (identify "*the most important thing you learnt during the week*"), the question still remained open-ended so that students could reflect on how T2U had helped them to develop a particular skill or how the program improved their perceived self-efficacy.

We then examined whether our teaching practice evoked perceived self-efficacy by analysing the students' reflective responses. Perceived self-efficacy was therefore the principle phenomenon investigated in our qualitative design. We applied a phenomenological research approach to assess both open-ended questions, following steps designed to enhance the credibility of the study (Graneheim & Lundman, 2004). We bracketed our assumptions and preconceptions regarding the phenomena under investigation prior to data analysis. All participants' reflective responses were read in order to obtain a general understanding of the main concepts identified in each student's response. Each student's response was then analysed to extract significant statements that directly pertain to a particular concept. These concepts were organised into theme clusters. In order to ensure the validity of the first author's research findings, the senior author independently classified the theme clusters. Following these two independent analyses, the two researchers met to reach a consensus by comparing the data and arriving at a mutually agreed upon set of themes. In total, 14 themes were identified and are listed in Tables 1 and 2.

Quantitative data analysis

In order to address RQ2 and RQ3, we examined data from quantitative surveys administered during the first-year nursing lecture at the end of the teaching semester. The surveys were administered in-class by a staff representative not directly involved in the teaching of T2U and all participants provided informed consent. The surveys were anonymous and all responses were de-identified before analysis. The items in the survey required students to respond to a variety of statements regarding their university studies (see Table 3, complete survey is available from the senior author). A total of 94 responses were received. Students self-identified as either having attended ($n=32$) or not attended the program ($n=56$). There were also six students who accessed the online T2U material via Moodle but did not attend classes. Results from these six students were comparable with the results from T2U attendees, so results for these two groups were combined for statistical analyses. Data from the surveys were analysed using the computer statistical programs GraphPad® (GraphPad Software Incorporated, 2013) and Microsoft® Office Excel® 2010. A Likert scale was used to classify responses as follows: Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5. Results are presented as mean \pm standard error of the mean. We determined statistical significance by conducting unpaired t-tests between responses from students who attended T2U and students who did not attend T2U. A *p*-value of less than .05 was considered significant.

Results

RQ1 and RQ3: Can the T2U program improve students' perceived self-efficacy and overall transition experience at the beginning of their studies?

As mentioned previously, students were asked to identify their expectations of the T2U program. A summary of the qualitative theme analysis of the students' responses is presented in Table 1. Most of the students' responses included multiple themes. Not surprisingly, a large proportion of the students wanted to improve their content knowledge in areas such as anatomy, physiology, chemistry, and mathematics (61.1%). Several responses also indicated the importance students placed on feeling prepared for university studies and transitioning effectively into university (44.2%), understanding university expectations (27.4%), and networking with peers and staff (23.2%). Improved assignment writing (27.4%), referencing (26.3%), and research skills (24.2%) were also desired by many participants.

Theme identified	Number of responses	Percentage of responses
Improved content knowledge	58	61.1%
Feeling more prepared for university studies/effective transition	42	44.2%
Better understanding of university expectations	26	27.4%
Improved skills for assignment writing	26	27.4%
Improved referencing skills	25	26.3%
Improved research skills	23	24.2%
Networking with other students and staff	22	23.2%
Better understanding of study skills necessary at university	19	20.0%
Improved confidence and self-esteem	17	17.9%
Becoming familiar with the campus layout and facilities	14	14.7%
Better organisational and time-management skills	6	6.3%
Becoming familiar with the university's online systems	4	4.2%
Confidence in seeking help when necessary	4	4.2%
Experience student life	3	3.2%

Table 1. Key themes identified in written student responses (n=95) to the question “What do you hope to gain from the Transition to University program this week?”

It was also important to determine what students thought they had gained by the end of the T2U program. A summary of the qualitative theme analysis of the students' responses is presented in Table 2. Most of the students' responses included multiple themes. Most responses reflected perceived improvement in feeling prepared for university studies and transitioning effectively into university (57.7%), as well as assignment writing (53.8%). While most students initially wanted improved content knowledge (61.1%, Table 1), this did not appear to be as highly valued by the end of T2U (37.2%, Table 2). Importantly, a large proportion of the students felt that the T2U program increased their confidence and self-esteem (48.7%). Interestingly, these improvements were low priorities for students at the start of T2U (17.9%, Table 1), but were considered as some of the most valued concepts at the end of the program (48.7%, Table 2). Other skill improvements that were considered important at the end of T2U were research and referencing skills (33.3%, and 28.2%, respectively).

Theme identified	Number of responses	Percentage of responses
Feeling more prepared for university studies/effective transition	45	57.7%
Improved skills for assignment writing	42	53.8%
Improved confidence and self-esteem	38	48.7%
Improved content knowledge	29	37.2%
Improved research skills	26	33.3%
Improved referencing skills	22	28.2%
Networking with other students and staff	13	16.7%
Better understanding of university expectations	13	16.7%
Confidence in seeking help when necessary	12	15.4%
Better understanding of study skills necessary at university	10	12.8%
Becoming familiar with the campus and facilities	7	9.0%
Better organisational and time-management skills	6	7.7%
Becoming familiar with the university's online systems	6	7.7%
Experience student life	5	6.4%

Table 2. Key themes identified in student reflections (n=78) on the final day of the T2U program, highlighting what the students felt was most beneficial during the program.

RQ2 and RQ3: Can the T2U program improve students' perceived self-efficacy and overall transition experience until the end of the first semester?

To address RQ2 and RQ3 we administered follow-up surveys to all students enrolled in first-year nursing at the end of their first semester. Results from these surveys are presented in Table 3. Importantly, when attendees were compared with non-attendees, T2U participants highlighted a more successful transition to university experience (4.16 ± 0.10 vs. 3.85 ± 0.10 , Table 3). When compared with non-attendees, T2U students also reported feeling more confident in a range of transferable skills, and in seeking help with their learning from lecturers, mentors, and peers (Table 3). Interestingly, T2U students were much more likely than non-T2U students to follow a study schedule at the end of the semester, even though time management was not explicitly taught in the T2U program. During homework feedback sessions several students commented that they were learning about the importance of organisational skills, so we think this likely resulted from the demanding nature of T2U.

Discussion and conclusion

This report summarises the evaluation of a transition program designed to teach transferable skills at the start of university study. Importantly, we showed that the T2U program improved students' perceived self-efficacy at the beginning of their university studies (RQ1). Furthermore, we showed that the improved perceived self-efficacy of T2U participants persisted until at least the end of the first semester (RQ2). Finally, we demonstrated that participants felt the transition program improved their overall transition experience (RQ3).

We believe that the T2U program improved self-efficacy in our cohort of students through the provision of authentic mastery experiences to develop transferable skills, as well as through social persuasion. The T2U program was designed to incorporate authentic mastery experiences, where students were required to complete real-life tasks or assignments by applying the new knowledge and skills gained from each part of the program. Activities and assignments were broken down and scaffolded into individual skills, with supervision and peer-support available to students. At the end of the transition program, students identified that they had improved their skills for assignment writing (Table 2). Furthermore, longer-term evaluation of the students' perceived level of skill confidence showed improvement in a range of academic competencies (see Table 3). Importantly, the mastery tasks in T2U were designed to be not only authentic, but also complicated requiring continual effort from the students to complete. It has been shown that mastery experiences are most effective when they occur in demanding situations, requiring persistent effort from the student (Bandura, 1986, 1997, 2012; Schunk, 1991). We believe that this can be seen particularly in the oral presentations. At the start of the program, students were uncertain of their abilities with regard to public speaking. By the end of T2U however, the majority of attending students had completed an oral presentation in front of peers and teachers. The reflections presented in Table 2 were collected before the oral presentations were delivered, so the overall level of achievement in relation to this task could not be formally measured. However, presenters anecdotally identified this experience as one of their biggest achievements of the week.

Social persuasion is another powerful way to build perceived self-efficacy (Bandura, 2012). When peers communicate their confidence in a student's ability, and knowledgeable sources such as teachers provide relevant feedback, students become part of a learning community

	Did Not Attend T2U (n=52-56)	Attended T2U (n=35-38)
I feel that I have made a successful transition into university studies	3.85±0.10	4.16±0.10*
I am confused about what to study or how to begin	2.68±0.15	2.74±0.18
I feel out of my depth at university	2.68±0.13	2.75±0.19
I am confident I will be able to succeed in my studies	3.54±0.10	3.80±0.16
I follow a study schedule (i.e. scheduled time for private study with time allocated to specific tasks)	2.61±0.13	3.43±0.18***
I am confident that I can assess whether the sources I use are academically acceptable	3.94±0.11	3.95±0.16
I feel like I am good at locating relevant or important material in a source	3.66±0.10	3.89±0.16
I can summarise journal articles effectively	3.30±0.10	4.00±0.14***
I keep a glossary of new terms/jargon that I learn	2.31±0.11	2.89±0.19**
I can identify key concepts, instruction words and other guidelines in assignment instructions	4.00±0.08	4.11±0.09
I write down a specific research question within the specified topic before beginning research or writing	3.56±0.12	3.89±0.15 ($p=.09$)
I obtain, read and think about information before starting to write assignments	3.78±0.12	4.17±0.11*
I am good at writing useful notes in my own words	3.47±0.11	3.97±0.14**
I know what is meant by ‘academic writing’	3.89±0.10	4.32±0.10**
I paraphrase using my own notes (not my sources)	3.76±0.11	4.06±0.12 ($p=.07$)
I know how to avoid plagiarism	3.85±0.13	4.47±0.08***
I record publication details (e.g. author name, title, year) and page numbers when I take notes	3.47±0.14	3.59±0.17
I am confident that I can find relevant sources using databases	3.76±0.10	4.00±0.19
I know which referencing style to use in nursing	4.46±0.08	4.62±0.08
I know how to find the referencing rules for my units	4.42±0.09	4.49±0.11
I follow the rules for referencing in every detail	4.18±0.10	4.26±0.11
I check <i>every</i> in-text reference and <i>every</i> item in my reference list	4.26±0.10	4.25±0.13
I know which information needs to be referenced	4.19±0.10	4.34±0.10
I know where to place references in my work	4.29±0.09	4.30±0.12
I know where to find assistance in my learning	3.93±0.09	4.32±0.11**
I know where to find assistance for information research (e.g. finding articles)	4.14±0.08	4.39±0.11 ($p=.08$)
I have spoken to the lecturers for each of my units	3.30±0.15	4.00±0.13***
I have spoken to a peer mentor	2.70±0.16	3.32±0.19*
I speak to other students in my units	4.54±0.07	4.74±0.07*
I have sought help with one of my assignments from a member of staff	3.20±0.17	3.76±0.20*
I am comfortable using Moodle	4.39±0.09	4.58±0.10
I know how to use the University’s online portal	4.38±0.10	4.59±0.09

Table 3. Students’ perceived transferable skill-level after a semester of tertiary study.

* indicates $p<0.05$, ** indicates $p<0.01$, and *** indicates $p<0.001$.

(van Dinther et al., 2011). Literature has extensively demonstrated the benefits of participation in a learning community, including an improved transition experience, enhanced student engagement and academic achievement, improved interaction with support systems and increased persistence and success (for a recent review see Rocconi, 2011). There are two common types of learning communities: those that are established when students enrol in several common units and those that are organised around a central topic of interest (Rocconi, 2011). We believe our T2U program fostered the development of a learning community organised around the central research topic identified at the start of the week. Time was provided throughout the program for a range of peer-learning opportunities. In particular, time was provided every morning where students could discuss and share their experiences of the previous day's workshops with peers and staff. Often, concerns raised by one student were shared by several others, making this a useful time for shared learning. From a teacher's perspective, this discussion time had the dual benefit of ensuring students were prepared for the new day's activities, as well as providing information about how students were coping with the demands of the program. Students' reflections on T2U identified networking with peers and staff as an important feature of the program (Table 2). The sense of belonging to a community was also borne out by the survey results, where T2U students were more likely to have sought help from others compared with non-T2U participants (Table 3).

A comparison between the results from attendees and non-attendees highlighted that T2U participants perceived their transition to university as more successful than non-participants (Table 3). Students also felt that they were more prepared for university studies after T2U (Table 2). As mentioned earlier, increased self-efficacy is a key feature of successful transition, course motivation and persistence, and academic performance. It would therefore be interesting in future studies to measure levels of retention and academic achievement in the first year of nursing studies to see whether attendance at T2U improves these factors.

Some important limitations to our study should be noted. The data obtained from students are self-reported, so a degree of response bias is likely. However, it is important to note that as this study examines students' perceived self-efficacy, self-report data and personal reflections are appropriate. Additionally, students can often be very self-critical, so it is unclear how much this affected our results. Finally, it is noted that it is unclear how self-reported skill confidence maps to actual course performance. It would have been useful to assess the students' overall performance during their first semester of studies, but the researchers did not have access to academic results for this cohort of students due to privacy restrictions.

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