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Student transitions – evaluation of an embedded skills approach to scaffolded learning in the nursing curriculum

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Abstract

A scaffolded learning and embedded skills educational framework was adopted by an intersectoral university teaching team for the foundational nursing course unit of study: "Frameworks for Nursing Practice." The scaffolded learning and embedded skills approach is espoused as recognising the unique learning needs of students who are transitioning to higher education studies from a variety of entry points (Green, Hammer, & Stephens, 2006; Kift, 2009; McWilliams & Henderson, 2008). The embedded skills approach adopted in this unit attempts to ensure that students transitioning from a variety of contexts acquire a range of introductory academic skills in a supported learning environment. A mixed methods evaluation of the unit of study over two years (2009-2010) has revealed that students are mostly appreciative of the scaffolded and embedded skills delivery format and cite that elements of the model have supported their learning needs.

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Background context

In recent years, universities in Australia have been exploring a variety of supportive educative frameworks which have potential for easing the transition process for an increasingly diverse cohort of undergraduate students entering into higher education. The aim is to improve retention and completion rates. Simultaneously, the Australian Government's *Transforming Australia's Higher Education System* (Australian Government, 2009) argues that Australia is losing ground in both performance and investment in the tertiary sector and highlights the connection between productivity and the proportion of the population with higher-level skills. The review calls for major reforms to the higher education sector including an increase in the participation rates, hence setting increased targets for the sector. Higher education will grow "so that by 2025, 40 percent of all 25 to 34 year olds will hold a qualification at bachelor level or above" (p. 12). Targets and funding were especially increased for lower socio-economic status students along with "a new student centred higher education system, which will enable students to develop richer learning and employment pathways" (p. 9). To increase productivity and growth, the reform agenda includes not only boosting participation rates of low SES students, but also the development of a demand-driven system of enrolments commencing in 2012.

As a result of the reform agenda, there is now an increasing need for academics to acknowledge transitional pedagogies in tertiary education environments. While most Australian universities have offered some type of academic learning support in the past, this has become an imperative and has spread to include other forms of support. Universities now recognise the opportunity to assist first year students with their "apprenticeship" into academic culture—a culture different to the experience of everyday life. In other words, the knowledge, skill base and attitudes to learning, which have been acquired from non-tertiary settings, often inadequately equip first year degree students to effectively comprehend and transcend the academic rigours of tertiary level studies (Tinto, 2009).

To address student academic needs, the constructivist model proposed by Biggs (2003) advocated that the design of teaching materials and activities should be learner-centred in ways that engage learners to actively construct the required knowledge. In the constructivist paradigm, learning objectives, content, resources and assessment activities should be explicitly aligned. In the same way, Fink (2003) emphasises the importance of an integrated course design so that components such as learning goals, teaching and learning activities, and assessment and feedback form a coherent whole. This applies equally to the academic skill development as to the discipline knowledge development; notwithstanding that the developmental process of each is never linear. The model with its focus on design has become one cornerstone of the drive towards a more comprehensive transitional pedagogy.

Transitional education models propose a range of teaching and student support strategies which aim to engage, and retain, first year students by making curriculum design contextual and delivery explicit (Knox, 2005; in order to facilitate "learning to learn" (Wingate, 2007 p. 391). Student-

centred learning and innovative teaching approaches are espoused (Peat, Taylor & Franklin, 2005) with developmental assessments (Star & McDonald, 2007), and the embedding of academic skills within a collaborative teaching team context (Allan & Clarke, 2007; Hooley, Morrison, Thomas & Marrs, 2011; Machin, Harding & Derbyshire, 2009). According to Kift and Nelson (2005), "designing coherent, cumulative units to engage students in their learning experience are a fundamental tenet of transition pedagogy" (p. 225). Transitional pedagogies also call for more than stand alone learning support, and include a wider range of strategies such as providing opportunities for students to develop a sense of belonging or engagement with their course of study and the university community (Nelson, Kift, Humphreys, & Harper, 2006). Kift (2009) suggests various considerations for curriculum design and development to improve the first year experience, including the following principles: Transition, Diversity, Design, Engagement, Assessment and Evaluation and monitoring. These six principles aim to ensure that transitioning students are supported in multiple ways, recognising that first year students must be "inspired, supported, and realise their sense of belonging; not only for engagement and retention, but also as foundational for later year learning" (p. 1). The adoption of an educative framework which addresses these six first year curriculum principles aligns well with current best educational practice for transitioning tertiary sector students and with the University in question's strategic directions and the national reforms for higher education.

A Framework for Transition

Influenced by the work of Kift and colleagues, a transitional pedagogy was developed and trialled within the Bachelor of Nursing curriculum of an Australian university. A constructively aligned, scaffolded, embedded skills approach to academic skill development was used for the delivery of a foundational unit of study, the *Frameworks for Nursing Practice* (HBN1101). This approach aimed to ensure that students were exposed to and acquired a range of introductory academic skills and professionally relevant competencies in a scaffolded learning (classroom and online) environment. In order to achieve the application of a scaffolded learning/embedded skills model, collaboration was sought with staff from a range of disciplines such as: School of Language and Learning (essay writing and numeracy); Student Careers Development (graduate capability development and e-portfolios); e-learning support (online Leaning Directory /online numeracy mastery module/Lectopia /Turnitin); and Library Liaison (information literacy/academic referencing). This collaborative development and delivery effort ensured the expanded capacity to embed academic skills such as: literacy, essay writing, numeracy, information technology and academic referencing/information literacy into the unit delivery. While the intention was to improve student outcomes, the approach can also be viewed as having provided substantial professional development for enhancing the skills and knowledge of staff involved in the unit. The practice-based initiatives undertaken in the unit of study span all six of Kift's principles and include a variety of methods including scaffolded approaches to

assessments and awards for class presentations. Given that curriculum development is considered to be a fundamental aspect of supporting transitioning students, the staff involved in developing and delivering this unit held regular planning sessions and decided to implement the following:

Online Learning Directory: With the recognition that students have competing time demands between study, work and family commitments, an Online Learning Directory was developed for the unit of study. This Directory outlined all weekly readings; tutorial and computer lab class plans with step-by-step and week-by-week advice.

Numeracy: A maths mastery package was developed and included: Practice tests that could be taken as many times as needed; face to face numeracy workshops organised for those assessed as "not yet competent."

Information literacy: This consisted of computer lab class plans for students about how to use the internet for academic purposes; Harvard style referencing aligned to unit assessments; database searching aligned to unit assessments.

Essay writing: This included tutorial and computer lab plans for students on how to analyse essay topics as applied to unit assessment by identifying content; writing process and word limits. Workshops for staff were held prior to ensure consistency of teaching across groups; paraphrasing selected article sections with examples of student and teacher attempts in class; creation of explicit marking guides displaying criteria for each grade level achieved in unit assessments.

Evaluation of the embedded skills approach to scaffolded learning

Drawing upon Yin's (2002) case study methodology, this evaluation employed group interviews/focus group methods to collect the core qualitative evaluation data from students and teaching staff. Focus groups are considered to enable a synergy between participants that can enrich the data in ways which cannot necessarily be achieved with a quantitative survey, statistics or solo interview method alone. Quantitative student surveys were also undertaken online, via the Blackboard learning system. This evaluative research project was therefore conducted using a pragmatic mixed-methods design. Mertens (2005) suggests that mixed-methods "have particular value when a researcher is trying to solve a problem that is present in a complex educational or social context" (p. 293); while Tashakkore and Teddlie (2003) identify the pragmatic research paradigm as that which provides the underlying philosophical framework for mixed-methods research. In order to reduce misinterpretation of data, some redundancy of data gathering was used for the purposes of triangulation, which may be broadly defined as the process of using multiple perspectives to clarify meanings and verify interpretations (Denzin & Lincoln, 2005). Data collection activities were conducted as follows:

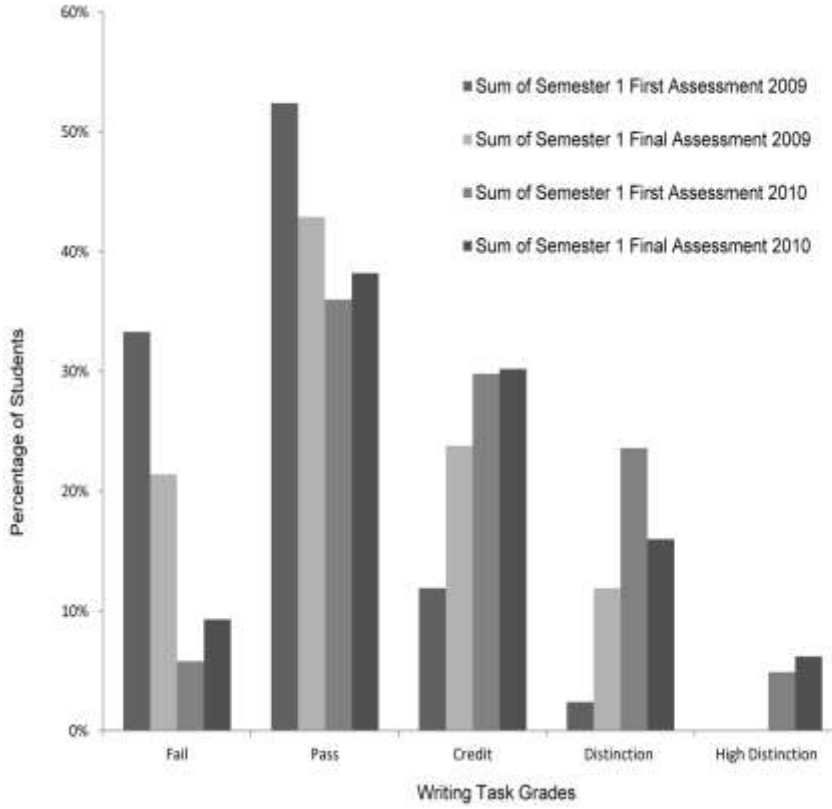

Figure 1 Student achievement data for writng tasks

Qualitative data: Students who recently completed *Frameworks for Nursing Practice* were invited via institutional email to participate in a voluntary focus group session. Semi-structured interview questions were used at each session to maintain consistency. The participants were asked to reflect on their impressions and experiences of the embedded skills/scaffolded learning approach adopted in the unit design and delivery (2009: n=24; 2010: n=4). Staff involved in the design and delivery of *Frameworks for Nursing Practice* were also invited via institutional email to participate in a voluntary focus group interview. They were asked to reflect on their impressions regarding the effectiveness of the approach to adopted for delivery of this unit (2009: n=6; 2010: n=5). All focus groups were audio recorded and transcribed and subsequently analysed for themes.

Quantitative data were collected through an online survey (2009: n=227; 2010: n=217) to gain feedback on aspects of the unit. Student survey questions related to the Learning Directory, learning about essay writing, referencing and data bases, and maths practice. Students could select "Essential," "Useful," "Not Useful," or "Don't know." They could also include written comments. In addition, Blackboard Grade Book data were collected and academic performance on literacy and numeracy tasks was compared at the aggregate level over a 12-month period in order to evaluate the effectiveness of the scaffolded learning/embedded skills model adopted in the delivery of this unit. The academic performance statistics for writing and numeracy tasks are depicted in Figures 1 and 2 respectively.

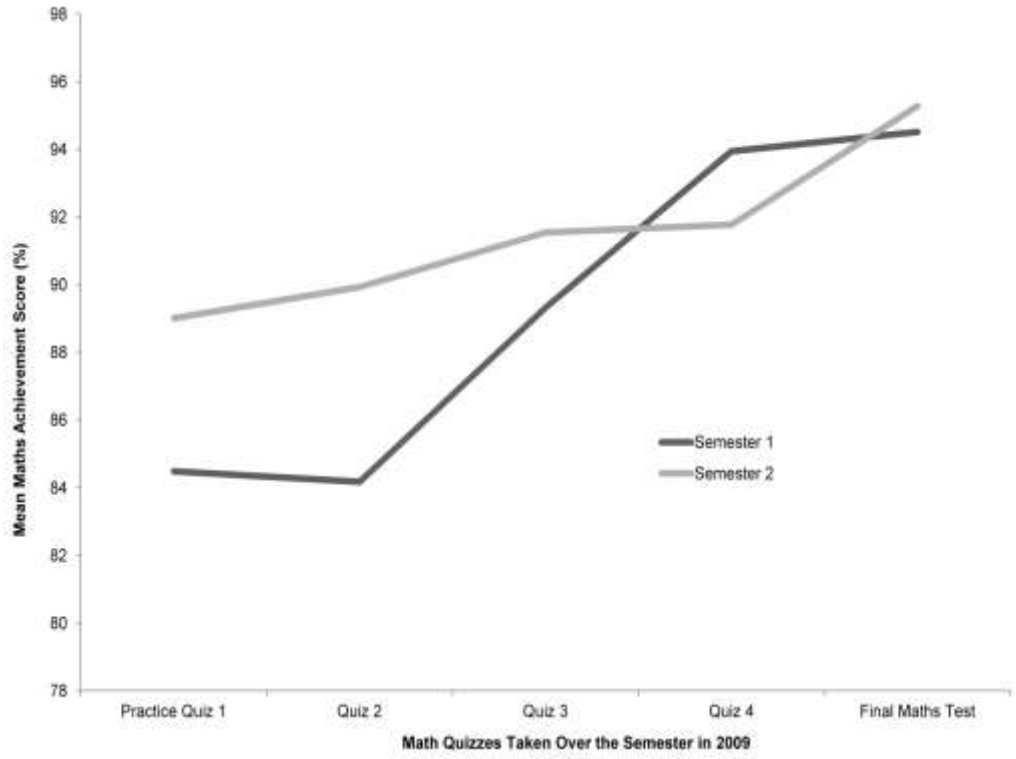

Figure 2 Student achievement data for numeracy tasks in 2009

Findings and discussion

For the writing task results, improvements of grade level did occur as the semester progressed; however this pattern was more significant in 2009 than in 2010. Similarly, paired t-test analysis of the numeracy scores revealed that over both semesters in 2009 individual students improved their quiz scores in a statistically significantly manner when the semester practice quiz scores are compared with the end of semester test results. In particular, there was a significant difference in math scores from the beginning of semester 1 (M=84.49, SD=16.18) to the end of semester 1 (M=94.63, SD=7.94); $t(98)=6.67$, $p<0.001$, $d=0.80$. Similarly, paired-samples t-test revealed there was a significant difference in math scores from the beginning of semester 2 (M=89.03, SD=11.38) to the end of semester 2 (M=95.29, SD=7.54); $t(102)=5.90$, $p<0.001$, $d=0.65$. These results suggest that individual student scores increased over semester 1 and semester 2. A paired samples t-test was also performed to examine the difference between maths scores in semester 1 compared to semester 2 at time of the practice quiz. It can be shown that students scored significantly higher in semester 2 (M=89.09, SD=11.48) compared to semester 1 (M=84.49, SD=16.18); $t(98)=-2.24$, $p<.05$, $d=0.33$. This demonstrates that although students' math scores improved over both semesters, students' practice math quiz scores in semester 2 started, on average, at a significantly higher level than those achieved in semester 1. Specifically, the results suggest that students' math scores improved during the semester with practice and repetition. However, conclusive inferences that the *Frameworks for Nursing Practice* program has had any direct impact on student achievement are difficult, as any changes in grade distribution for assessments may or may not be directly attributable to the program. For example, it would be uncertain as to whether students simply improve in writing through practice alone. Despite these limitations of the study, future research could be undertaken to examine the relationship between perceptions/attitudes of the program and student achievement. To undertake such research, adequate linkages need to be made between the different data sources. For example, in relation to future use of the survey, it would be necessary to gather identifiable information from each respondent (e.g. student identification number) which could be used to link each student's responses to their achievement data (e.g. grade book results). Although anonymity could not be assured under such circumstances, it should be noted that confidentiality could be assured via only reporting aggregate data in any publications that arise from the study. The remainder of this section reports on the early stage analysis of student responses to the online survey as well as drawing on the focus group interviews to present perceptions from staff and students on different aspects of the curriculum initiatives. Future papers are planned to explore the responses in more detail.

Online Learning Directory

A major element of the scaffolding approach was the provision of a Learning Directory which was an on-line tool developed to assist students by placing all materials in a central place. It contained all course materials including week-by-week guides, readings, assessment tasks, maths practice tests as well as lecture recordings.

Lecturers reported that they felt this was very helpful as it was "very precise." The Learning Directory provided consistency for each session, especially when used by academics in conjunction with the week-by-week Facilitators Guide. Students were asked to rate the online Learning Directory as a learning resource and how frequently they used it. In 2010, of the 217 responses, 72% reported they use the Learning Directory weekly, while 35% reported that they use it fortnightly. When asked how they would rate the Learning Directory as a learning resource, 45% selected "Essential" while 47% suggested it was "Useful." Only 8% of students thought the resource was "Not Useful" or had never accessed it at all. In general, students who completed the survey seemed very satisfied with the online Learning Directory. Additional written comments from students about the online Learning Directory were also very positive and included that it was "easy to use," "reliable," and could be "accessed from anywhere." For example:

> It is easy to understand and helpful.
>
> It's very useful for essay writing.
>
> I've found the Learning Directory to be of great use, as it helps me prepare for my upcoming tutorial class which allows me to utilize the class as best as I can.
>
> Frameworks learning directory is the best I have seen yet, I think that every other subject should follow the implications that frameworks has done.

However, some students who completed the survey found the online Learning Directory *confusing to find things sometimes* or *very complex to use*. One student suggested that: *sometimes it isn't clear where the information that is needed is*. These contrasting views might suggest that, as with many aspects of transition, some students need more support than others. If the majority of students reported it was easy to use and less than a third found it complex, it may be that additional "just-in-time" support may be needed for a small number of students. As with many aspects of teaching and learning, what works for most students does not necessarily work with all students. The early confusion that students invariably experience at the start of first year takes time to rectify but the sooner students can be supported, the sooner they can settle into effective learning habits and strategies.

Accessing lectures online: e-learning support

Given the diverse student cohort at this University, it was seen as important by the teaching team to offer "back up" support for students who are not able to attend lectures due to work, illness or family commitments or other reasons. The following results indicate the reasons why students utilised recorded lectures as a mechanism for not falling behind when they could not attend in a face-to-face manner. Students cited that the reasons for utilising online lectures were: work commitments (26%); family commitments (31%); working on other assignments (31%); the only class that day (28%); and medical reasons (21%). It is important to note that 50% of students who missed lectures said they would not have been able to attend more lectures if the recordings were not available. This suggests that having these recordings is important. Other comments about the recordings included:

> It should continue. The lectures that I missed for being sick and I just printed out my lecture notes and sat at the computer at home and listened to it while making notes I think that it was helpful coz [sic] at home there was [sic] no people to distract me from listening to the lecture. Would like to get more information about online lecture recordings, because sometimes find difficulty in accessing.

Student responses about embedded academic skills

Students were asked to provide their perceptions of the usefulness of face-to-face tutorials on essay writing, information literacy and online maths practice tests. For the tutorials on essay writing skills, which were based on the required essay topic from the unit assessment, in 2010, 85% reported that this was "Essential" or "Useful" (31% and 54% respectively), while only 15% reported that it was "Not Useful" or did not attend these sessions (13% and 2% respectively). Similarly, the results from students on the usefulness of the sessions run by the library on referencing and database searches were that 90% found it "Essential" or "Useful" with only 10% rating it "Not Useful." The ratings for the math's practice tests received a 92% response of "Essential" or "Useful," with only 8% saying it was "Not Useful" or they had never used the practice tests. From these responses, students have indicated that essay writing, information literacy skills and math's practice tests were very useful. In the focus groups, the students also stated:

> I feel that in terms of writing academic essays, it was very good. Frameworks was one of the better ones in terms of the foundation process with the labs and with the library labs and the referencing and the Google-ing. I for one found that, you know, I didn't know you could Google government websites and things like that.

> I was out of school for 30 plus years. I know nursing is an academic/science area. Frameworks helped me learn some academic skills, which helped me.

> I am speechless on how much I've learnt about the computer this year – learning to navigate the internet – I didn't even have the internet at home when I started.

> They helped with referencing and research. There should be more of it.

Staff also commented on this in the focus group interviews. For example, a library staff member pointed out that the research (for libraries) shows that what works best is to embed information literacy skills so they can be tailored to specific disciplines and can be delivered at the most appropriate time for student use. She adds:

> And the feedback that I've been getting from the library staff that work on the reference desk in the library is that since we had had information literacy embedded into the nursing course, that they have noticed a change in the types of questions that they're getting from the nursing students, because the nursing students are big, frequent users of the reference desk. They're a lot more informed in terms of the questions that they've been asking.

However, some students commented:

> For me, because like I said, I'm basically ESL, English is a second language. The focus on academia to me is too much, too harsh, and the fact that we're trying—for me, I feel, because it's not

> my first language, I feel like I'm always behind the eight ball.
>
> I think it is not fair comparing foreign students with other students – perhaps our academic writing is weak, but we can communicate the information orally – I know everything from all the lecturers, tutorials etc. but all the marks are based on 3 essays which is not my strength.

Some students therefore feel there is a lot of emphasis on academic essay writing and this is not their strength. Generally however from the research results in this study, it appears that the majority of students and staff consider the embedded approach helpful to assist the development of academic skills.

Staff perspectives – a different way of working

As a first year, first semester subject, *Frameworks for Nursing* attempts to teach discipline content whilst simultaneously providing academic skill development for first year students. Staff were asked their views on a range of aspects of this embedded approach including the use of on-line tools, working with support staff, and having support staff deliver sessions directly within their classes. The overall response was positive in that staff believed this subject helped first year nursing students understand a range of academic conventions. As one nursing lecturer stated:

> I think the expectations were made clearer about what we mean by academic writing, critical thinking, those sort of scholarly activities that I think a lot of people who start nursing are a bit naïve about.

Staff also commented that they felt that one difference in adopting a more collaborative approach was that once identified as "at risk," students were already familiar with the relevant support staff and services offered by the university. It was no longer a case of abstractly suggesting to a student that they "go off and get learning support." It was felt that students already had familiarity with particular support staff and services as part of the delivery team. They were no longer some anonymous "support service" from somewhere else. Staff responses from focus group interviews echoed views in the theoretical literature about the benefits of working collaboratively for staff as well as for students. As one staff member put it:

> Because we were liaising with all the people with better communication and collaboration it was a team, a multi, inter-professional team delivery.

This squares with Crosling and Wilson's (2005) claim that there are benefits for both staff and students in programs that work in a collaborative way. They argue that in working together, staff learn to understand ways of viewing the world that others hold. This is not to say that there were no issues in moving toward a more collaborative approach to assisting students. For example, one lecturer recalled:

> So I think as a staff member, it's a challenge working with an integrated curriculum because it sort of starts off this expectation that everyone is going to suddenly start communicating and not work in silos. It's easier to work in isolated ways.

Developing a set of shared understandings amongst staff takes time as such "shared meanings are developed as newcomers

move into particular communities and develop understanding of the appropriate way to communicate and thus how to be understood by other community members" (Crosling & Wilson, 2005, p. 9). It may be that over time, staff will refine this communication to approximate what Crosling and Wilson describe as a "resource rich environment" (p. 9). Evidence of staff seeing themselves as a community with shared values was demonstrated by a common vision and a common vocabulary for articulating that vision during the interviews. They were aware of issues such as the notion of "transition pedagogy" and concepts like "scaffolding and embedding." They understood that they were attempting to "embed" the additional but necessary academic skills into a nursing subject. They felt that it was important to combine both goals throughout the semester.

Conclusion

An embedded skills approach as an approach to learning is based on the idea that if language development is contextualised into the content-learning tasks, then students will grasp their significance more readily and be motivated to learn them. This means that if a student has an essay due, then embedding and aligning requirements for success and strategies for developing language skills into the assignment, helps these skills become more salient for the learner. The relevance of this type of research to first year transition programs is that it suggests the need for a curriculum that helps students understand what it means to learn or to "know" in an academic context. The intersectoral teaching team, which slowly developed into its own teaching and learning community, was clearly successful in assisting the transition of students and enhancing the academic experience. The extra commitment that may have been experienced by some of the team with regards to communication, resource development and marking was rewarded by student feedback that valued the efforts of the teaching team. It is possible that some of these efforts were unnoticed by the students initially and in fact, only by contrast with other subjects, was the degree of support and well structured approach apparent. The aim is for students to see the teaching program as an integrated whole and the more this is the case, then the students are less likely to see the individual components. Even so, it is heartening when students do notice and acknowledge the individual efforts made by teachers. The benefits to the students as they acquire some of the skills of academic discourse and information literacy go beyond the targeted subject and should mean that further studies can build from a more substantial base.

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