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Higher Education Research and Development, 2017; 36(2):430-443

https://doi.org/10.1080/07294360.2016.1178216

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11th December 2017

http://hdl.handle.net/2440/108843

HIGHER EDUCATION RESEARCH & DEVELOPMENT, 2017
VOL. 36, NO. 2, 430–443
http://dx.doi.org/10.1080/07294360.2016.1178216

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Shifting dimensions of autonomy in students' research and employment

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ABSTRACT
This study considers the conceptual space, or extent of autonomy, given to coursework Masters students before, during and after a Business Ethics course that explicitly developed and assessed their research skills. This vocationally oriented and academically challenging course used the *Research Skill Development framework* as its conceptual model to reshape the learning and assessment environment, articulating to students not only the research skills required, but also clarifying the resulting autonomy in their research-orientated learning. In the study, seven students attended semi-structured interviews and transcript analysis of interviews revealed the level of student-declared autonomy before commencing coursework Masters, while completing the Business Ethics course, and near the end of their Masters degree. All of the students interviewed were studying part-time and working part-time, and so the applicability of the research skills to students' work environment emerged as a major issue of interest. This paper richly represents the students' perceptions, and is the first paper to directly address coursework Masters student autonomy in research in a longitudinal manner; as such it provides a deep and nuanced understanding of the conceptual space that students need for success in study and as preparation for employment.

ARTICLE HISTORY
Received 28 February 2015
Accepted 8 April 2016

KEYWORDS
Coursework Masters; Masters research requirements; postgraduate; research skills; student autonomy

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Introduction

A claustrophobic education with little room to grow and much monitoring is as far from ideal as an unbounded experience in which students develop the agoraphobia associated with uncertainty. This paper questions how much conceptual space, or autonomy, students require over time in their studies. While 'autonomy' is frequently listed as a university graduate attribute (Fraser & Thomas, 2013), it is rare to find empirical studies that explore the concept in detail (Wielenga-Meijer, Taris, Wigboldus, & Kompier, 2011). This paper provides a deep understanding of autonomy from the perspective of students on the verge of graduating.

Graduates will need a set of skills to deal with the varied real-life situations they will face in employment, especially critical thinking, problem solving and life-long learning. In this

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paper, these skills are explicitly developed through research tasks, which require an active set of processes to delve deeply into issues, problems and phenomena. In Australia, Masters by coursework programmes are required to demonstrate that they satisfy the 'Level 9' research requirements of the Australian Qualifications Framework (AQF, 2013), which stipulates that students work with a 'high degree of autonomy' in terms of research components of the programme. That is, ultimately students need to operate successfully when they have a lot of conceptual space.

The Research Skill Development (RSD: Willison & O'Regan, 2007) framework was used to structure components of a Business Ethics course completed as part of a Masters degree programme. This paper reports an empirical study of students' perspectives on the use of the RSD, and brings together the two themes of employment-relevant research skills and student autonomy.

Student autonomy

Autonomy is frequently portrayed in education literature as an attainment or character trait (a *graduate attribute* in some countries) that is developed in an incrementally increasing fashion. From this perspective, ideal higher education prepares students to be autonomous graduates (Boud, 1988). A summary of the literature up to the mid-1980s on autonomy captured this sentiment: 'What is important is the direction of change – towards student self-reliance – not the magnitude of it' (Boud, 1988, p. 22). The concept generally portrayed is a *disposition* (Fazey & Fazey, 2001) or capability (Macaskill & Denovan, 2013) that is developed linearly, progressively increasing towards an autonomous employee, which is current in the literature (Fraser & Thomas, 2013; García-Aracil, 2009; Hernández, 2012).

Autonomy is also examined in the literature in relation to the extent of scaffolding required for effective learning. Here, finding the *optimal* extent of autonomy is paramount. One empirical study concluded that 'from a costs-benefits viewpoint, moderate autonomy must clearly be preferred to both having no as well as full autonomy' (Wielenga-Meijer et al., 2011, p. 308). This is, in effect, one interpretation of Vygotsky's Zone of Proximal Development (Cole, John-Steiner, Scribner, & Souberman, 1978); ideally teachers should provide the level of guidance which produces the 'sweet spot' for optimum learning and thinking. Hence, education generally, and the development of research skills in particular, would progress most successfully for a whole cohort when in this middling educational 'Goldilocks zone'.

A related perspective is the consideration of different and appropriate points on this educative autonomy continuum. Anderson (cited in Gurr, 2001) notes that the dimensions of autonomy required by PhD students are not timebound, but rather dependent on the degree of familiarity with the task at hand. Thus, while educators may desire an ultimate characteristic of autonomy, the learning environment needs to provide the level of structure and guidance appropriate to the student:

> Though the successful student will typically develop from a state of relative dependency to *competent autonomy* over the period of candidature, progress along this continuum should not be seen as consistent in either pace or direction. Periods of slow progress and of *elevated levels of dependency* are likely when new phases (such as data analysis or thesis writing) are initiated. (Gurr, 2001, p. 85; italics added)

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Elevated levels of dependency entail going 'backwards' on the autonomy continuum, towards requiring or operating under a high level of structure. This does not mean going backwards educationally, but rather provides insight into what happens in more conceptually demanding contexts, when students move into unfamiliar territory or when more rigour is required (Brew, 2013; Willison & O'Regan, 2007). It is in such contexts that higher levels of prescription with more confined conceptual spaces may commonly assist development of appropriate levels of competence. However, if there is a desire to enable students to become autonomous, then opportunities need to be provided for them to engage in decision-making (Boud, 1988) with room to move. Shifting towards higher levels of autonomy does not imply permanence but rather is a flexible process where students may need to revert to low levels of autonomy to aid an increase in competence and rigour. This current paper focuses on autonomy as the extent of choice that students are given, or take, when engaged in researching.

This present paper considers a fine analysis of interview data from students in Business Ethics, one of the courses in the Willison (2012) study that used the RSD framework to inform curriculum reinvigoration. It maps out the conceptual space that students perceived themselves to work within, in terms of their research-related autonomy during the course as well as in study and employment before and after the course.

Research Skill Development Framework (RSD)

The RSD is a 'conceptual framework for the explicit, coherent, incremental and cyclic development of the skills associated with researching' (Willison & O'Regan, 2006/2013, p. 1). The RSD describes a continuum of five levels delineating the extent of autonomy – the conceptual space – that students are given or experience when using skills associated with research.

Prescribed Research (Level 1) of the RSD provides for low student autonomy with set procedural tasks such as tightly defined laboratory protocols or close instructions on text engagement, tasks not traditionally seen to be associated with research. Prescribed Research is analogous to stepping stones that determine direction with few, if any, choices to be made. However, this level of autonomy can prove to be pivotal for some students to develop discipline-appropriate research skills. In Prescribed Research, academics and tutors may closely model appropriate ways of engaging with information and data in the discipline; this modelling is core for students to understand how to proceed in discipline-appropriate ways and, indeed, how to add rigour to the process. Such a need is highlighted by Chaplin (2003) who found that, given repeated open-ended research tasks at university level, students often applied the same degree of sophistication in their third year as in their first year. In other words, high levels of conceptual space left many students rattling ineffectively around inside. Prescribed Research strategies are not trivial but are confined spaces with limited manoeuvrability where students are to some extent corralled in discipline-appropriate research directions and methods.

Bounded Research (Level 2) provides some scope, with limited space for student decisions regarding each facet of the RSD. Bounded Research is analogous to the banks of a river, setting parameters for water flow, with choices of direction within the boundaries. The move from Prescribed to Bounded Research for some can be a major stumbling block because they are required to make choices, albeit from a limited range of options.

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This increase in autonomy is not necessarily welcomed by students and resistance may occur due to their perceived risks of making decisions. Conversely, some will be frustrated with the relatively small amount of scope involved in Bounded Research. Nevertheless, limits to student choice enable Bounded Research to act as a realistic process for educators to provide sufficient feedback, thus assisting students to add degrees of rigour to their research processes.

Scaffolded Research (Level 3), while educator-initiated, requires students to work independently – individually or in teams – within set parameters. Like the scaffolding required for buildings and renovation, scaffolded structures erected by the educator enable substantial scope for student choice concerning direction, methods, resources, media, audience and so on. Educators' parameters for Scaffolded Research take consideration of task achievability in the timeframe set with available resources. In addition, it is easier to compare the quality of student work at this level than at more open levels.

Open-ended Research (Level 4) is a significant shift from Scaffolded Research because it moves from educator-initiated to student-initiated research, with one or more 'ends' or facets of the research process 'open' for student determination. In Level 4, students pose research questions, set project aims, determine resources needed and audiences to communicate with. However, the educator's guidance is vital, providing expert advice to steer students in directions more likely to lead to success and towards adding rigour to their efforts.

Unbounded Research (Level 5) gives students scope to determine all aspects of the research process, including the direction, methodology and audience, where they take full responsibility for their research. 'Unbounded' does not imply lack of rigour or sophistication, but performance at this level is interpreted in keeping with disciplinary standards and assessed at the level of competence required for the student's particular year of study. That is, students may initiate research at Level 5 and work autonomously, but only applying the degree of rigour, sophistication and competence to gain a pass. This is similar to judging Olympic diving, where scores are awarded not only according to the dive execution, but also according to its difficulty. One aspect of more autonomous research (Levels 4 and 5) is that multiple opportunities for initiating experiences, with increased practice and feedback, make it more likely that students will add degrees of rigour and sophistication to the process (Boud, 1988), even as the conceptual demand increases across years of education.

On the RSD framework the five levels of autonomy elaborate a continuum for each of six different facets of research, where students: embark and clarify; find and generate; evaluate and reflect; organise and manage; analyse and synthesise; and communicate and apply. The six facets form the vertical axis of the RSD, with five degrees of autonomy forming the horizontal RSD axis, and have been described in detail elsewhere (Willison & O'Regan, 2007).

A study of the use of the RSD framework in regular courses across five universities found, through surveys ($n = 601$) and interviews conducted one year after completion ($n = 46$), that a large majority of participating students saw their developed research skills as being relevant to further employment and to subsequent study (Willison, 2012). This contrasts with a study that found that less than half of the students ($n = 168$) in a research methods course surveyed were convinced that research skills were necessary for subsequent work (Murtonen, Olkinuora, Tynjälä, & Lehtinen, 2008). One

of the courses in the Willison (2012) study was the Business Ethics course that is the focus of this paper.

Research context and question

Thirty-five students enrolled in Business Ethics, a Masters-level course, during a Summer Semester in an Australian research university. Based on previous experiences with the high proportion of international students in the course, the academic coordinating the course chose to take existing learning and assessment tasks, and reframe these in accordance with the six facets of the RSD; her aim was to explicitly develop and assess students' research skills in a business ethics context.

In analysing the curriculum, the coordinator decided that an existing introductory ethical thinking activity could be formatively assessed at Level 3 on the RSD; Scaffolded Research where the students require a high degree of independence in the activity initiated by the academic. The RSD was utilised to create a marking matrix elaborating the six RSD facets into three levels of criteria, with the top level meaning, in effect, that the student works competently within the scope of Level 3 autonomy. The resulting matrix, or rubric (Schapper, 2007), was used to provide early feedback on students' work. In addition, in the final assessment students had the scope to legitimately determine research direction of a research report; marking criteria were devised that elaborated the six facets of the RSD into four levels of performance in keeping with Open-ended Research (Schapper, 2007).

Therefore, the RSD reframed the formative assessment occurring at the beginning of the curriculum and the summative assessment taking place over an extended period in the second half of the semester. Otherwise learning activities and inputs stayed the same as previous years, so the substantial change was in documenting marking criteria for the formative task and reframing assessment criteria for the summative task. The academic stated that nothing changed and yet everything changed: the learning tasks, including readings, were the same; the assessment was the same in nature. But the way she talked about the tasks was different: in effect, the students were joining in a research community and its conversations. She found that the way students engaged with assessments was different too, and they began inviting friends and family to attend their final research presentations.

Previous analysis of pre- and post-survey data from the same cohort revealed that there were statistically significant positive changes in students' perceptions about their general research skills, their business ethics research skills, their ability to pose researchable questions, and to find or generate credible information and data (Willison, Schapper, & Teo, 2009). However, there was limited capacity from that analysis to attribute the level of influence the Business Ethics course had on those semester-length research skills. In this current study, those interviewed 15 months after completion were able to articulate the causes of changes in their competent autonomy. The research question of the current study was:

> What is the range of student perspectives on their extent of autonomy in their own research, at commencement of coursework Masters, during the Business Ethics course that explicitly developed and assessed research skills, and a year after completing that course?

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Methods

Interview process

The study used semi-structured interviews (Wengraf, 2001), with questions to determine the perspectives of students towards their research skills:

(1) Pre-Masters (before the course was studied)
(2) During the Business Ethics course (Summer Semester December 2007 until January 2008) and
(3) During the interview, which was 15 months (April 2009) after having completed the Business Ethics course.

No questions specifically prompted students to discuss the extent of autonomy used in these three time periods. However, early analysis of transcripts (Willison, 2012) suggested that this strong emergent theme was worth probing in detail in this study. From the interview transcripts, data were extracted to establish the RSD Level of Autonomy during the three time periods for each of the Business Ethics students.

Transcript analysis

The analysis involved fine-grained reading of transcripts, and discussing at length one transcript per meeting. Epitomising statements for each level were identified. Eight meetings were held with all four team members present, during which each provided their own coding of level of autonomy for each student and each time period. For all the transcripts, each member of the team pre-read the whole transcript and made some preliminary judgements about the level of autonomy portrayed for each time period. The meeting time involved argument about the autonomy level evident in the different time periods in each specific transcript statement, and aimed especially at deep understanding of the context in which statements were made. This was a complex process of the group normalising: to the meanings of autonomy in each of the five RSD levels; to Masters-level requirements of conceptual demand, rigour and competence; and to students' statements that provided insight into autonomy, including the context of the entire transcript. Most frequently, total agreement was reached; however, on two occasions the statements under analysis were not sufficiently precise to locate on one level, and so were left spanning two levels.

Results

A total of seven students were interviewed face to face, four male, three female, one had graduated, two ready to graduate and four close to completing their Masters; all worked part-time during the degree. As noted, students were not directly asked about autonomy or scope in the interviews, yet statements that pertained to conceptual space emerged spontaneously for all those interviewed. Epitomising statements from the interviewees that align with each level of autonomy of the RSD follow to provide a sense of students' experience of autonomy; this is a function of the scope and conceptual space that the educator or employment context provided, together with students' own engagement.

One student explained the clarity provided by processes akin to *Prescribed Research*, Level 1 of autonomy:

> It's clear, it's articulated, there's no ambiguity, you need to do this if you want to get to that level, and this and this and this … (Student 6)

Another student spoke of the desire to engage in spacious, Open-ended Research, but the need first to understand the processes required:

> So I guess that is the ultimate, to conduct your own research. But … you want to go to so many places, but you don't end up going anywhere, because there's too many choices and you don't know which way to go or what to do first, or whatever else. (Student 5)

This student could appreciate the ultimate goal to 'conduct your own research', but knew this ownership was insufficient when 'you don't know which way to go', where there is too much space. This desire for more clarity in research experience to limit choices to those attainable with an existing skill set equates with *Bounded Research*, Level 2 autonomy.

One student statement epitomised the need for educator-initiated research providing structures that also required substantial independent work by students, equivalent to *Scaffolded Research*, Level 3 autonomy:

> To take the topic and then go off and try and do something with it that interests me while I'm doing it. But I'll certainly take on board the understanding that [educator's name] is interested in research, she's keen to develop our research skills, so therefore more effort needs to be put into the research that I'm doing, and make sure it's valid and relevant and tied in, and argued concisely to where she's headed for. (Student 7)

Here, the emphasis is taking a provided topic, initiated by the educator, so that the student could 'do something with it that interests me' meaning there was scope for innovation within the scaffolding of 'where she's headed for'.

The move to *Open-ended Research*, Extent 4 is characterised by the student initiating topics, questions, processes and setting of quality standards. At this level, guidance provided by educators is very important, and so not all aspects of the research is open, but rather the 'ends' are. It may be, for example, that the point of embarking and the final conclusions are open, but not all aspects in-between. One student stated:

> She gave me an opportunity to actually give her the roadmap or give her what you're thinking of writing, like, four to five weeks before the assignment is due so that she can direct you. So that I thought was a good research sort of thing. It's just not like, let them write whatever they want, come back and I'll grade them; it was like, giving them an opportunity … she made an effort to ensure that we were on the right track as well, so that it doesn't hinder our research. (Student 3)

Unlike Student 7's epitomising statement at Level 3, who *took* a given topic, here Student 3 perceived the space to develop and *give* the educator 'the roadmap'. The roadmap is this student's way of talking about planning direction and processes of the research. Yet this is not Unbounded Research of Level 5 autonomy, as the student appreciates the guiding function of an expert practitioner who 'can direct you' to 'ensure we were on the right track', a statement true to the map metaphor, where 'right' may mean 'doable in the timeframe and resources' or 'without a dead end'.

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In all of the above quotes, students are reflecting on in-course aspects; however, one student provided employment examples of highly independent *Unbounded Research*, Level 5 autonomy:

> I need to have an understanding of who they are and what their business is, because it all comes down to a reliability issue for me. I have issues about continuity of supply and quality of product and things like that, so I wish to know who the manufacturer actually is. It's not necessarily an issue that I buy directly from the manufacturer; I'm happy to buy through an agent, but I need to research that sort of thing. (Student 4)

This is a Masters student who in the employment context initiates industry research without guidance and aimed to understand deeply 'what their business is', with questions about continuity of supply, processes used to achieve this and setting of quality standards, in this case resulting in 'quality of product'.

Following the process described in the method, the highest level of autonomy evident for each student and time period was plotted on Figure 1. Figure 1 shows the autonomy revealed by students in interviews per significant time period; before Masters study commenced, during the Business Ethics course and 15 months after the Business Ethics course. Most students (2, 3, 4, 5, 6 and 7) suggested that their own research capacity required either prescription (Level 1) or boundaries (Level 2) before their Masters. However, during the Business Ethics course, their own autonomy in research increased, and towards the end of their Masters (during the interview) perceived themselves to be operating close to Levels 4 and 5.

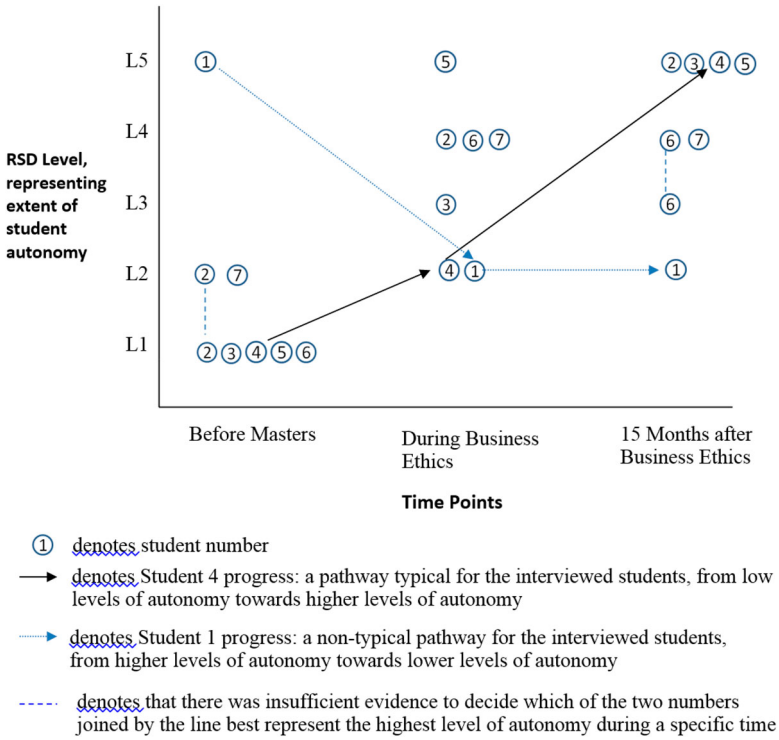

Figure 1. Degree of autonomy vs. time points.

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The Student 1 trajectory, inverse to the general trend, demonstrates high research autonomy pre-Masters, decreasing to Level 2, both during Business Ethics and 15 months later. Reasons for the differences are examined in detail below, considering Student 1 and Student 4 to represent two very different experiences.

Details of two different student experiences

Student 4

Figure 1 reveals that Student 4 provided statements for Level 1 autonomy in research pre-Masters, Level 2 during the course and Level 5 fifteen months after the Business Ethics course, and close to completion of the Masters programme. Reflecting in the interview on the time before his Masters, this student stated:

> … before Masters, I didn't really do any research …

During Masters, the degree of autonomy the student articulated increased to Level 2, with:

> … a clear understanding of what was required, what my outcome, what I was trying to achieve is always for me personally a good point.

Fifteen months after completing Business Ethics, and nearing completion of the Masters programme, Student 4 said that he had conducted in his work environment:

> … face-to-face interviews with people, trying to get an understanding of their experiences of a particular situation that I may be looking at …

Here, the highest autonomy level is at Level 5, as his research is self-initiated ('I may be looking at') and that meets a need in his work context. There are no externally imposed standards, only those that will lead to deeper 'understanding of their experiences'.

However, working highly autonomously with the Unbounded Research scope that he determines during employment does not imply that Student 4 will simultaneously be able to work at a competent level in his Masters research:

> Doing the type of academic research, I suppose the only correlation between that and what I do professionally is that there's an element of detective work done on the computer.

In other words, working competently at Level 5 autonomy in one context does not imbue a capacity to work autonomously in another context, reflecting the idea that industry-based research is, in the main, different from academic research that he engaged in.

Student 1

Figure 1 indicates Student 1 operating at Level 5 of autonomy in research pre-Masters and Level 2 during and after the Business Ethics course. Student 1 was working at a phone company before starting Masters, and reflecting on this experience enabled him to articulate the different facets of research:

> I looked at the movement of customers, so people that were churning, people that were disconnecting, people that were switching on, and basically I sort of plotted them all across a timeline and the way they picked them was I looked at what happens prior to competitors activating their D-slams … I looked at it basically a couple of months before they had it

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> and a couple of months after, and then you could sort of see how they did it … . It was not like a lengthy word paper, but it was a bit of research and findings. (Student 1)

This statement provided a sense of applied research at autonomy Level 5 and outlined all six facets of the RSD:

> *Embark and Clarify*: 'I looked at the movement of customers'.
> *Find and Generate*: ' … people that were churning, people that were disconnecting, people that were switching on'.
> *Evaluate and reflect*: his reflection above revealed much of the research process, however, he provided no sense of evaluation of data.
> *Organise and Manage*: ' … and basically I sort of plotted them all across a timeline'.
> *Analyse*: 'I looked at what happens prior to competitors activating their D-slams … I looked at it basically a couple of months before they had it and a couple of months after … '.
> *Synthesis*: 'and then you could sort of see how they did it … '.
> *Communicate and Apply*: 'It was not like a lengthy word paper, but it was a bit of research and findings'.

Salient here is that the student considers it 'a bit of research', useful, but not necessarily up to the standards of a Masters, and still working towards developing a sense of competent autonomy. This student explained that he did research to understand a customer-oriented phenomenon so that his company could compete and do better in future. The above facets could just as readily be described as those associated with graduate attributes such as critical thinking, problem solving and or life-long learning; however, he described it as 'a bit of research'. Reflecting on his understanding of *academic research* before Masters, he said it involved:

> … time in the library or on the internet looking up things basically and try to prove it or disprove it, by trying it on other people's work.

Similarly, he discussed understanding of research after the Business Ethics course in these words:

> Current understanding – it's still the same as it was before … So you get a hypothesis or something and you basically try to prove it or disprove it, by trying it on other people's work.

Although his research in the work context was highly autonomous, the student did not see himself as a researcher; his idea about research in an academic context was at Level 2 autonomy and did not alter during or at the end of his Masters. He found that academic research is a scientific process involving use of library resources, following a sequence of events starting from a hypothesis and ending with an opinion informed by references. Heavily influencing his competent autonomy in the employment context towards the end of his Masters was his change of jobs to a new position, where he was not able to research with the high degree of autonomy as in earlier employment.

Discussion

The data provided snap-shots along a spectrum of possibilities. The common trend of those interviewed in Figure 1 is an increase in autonomy over the three time periods, shown by Student 4 who perceived 'I didn't really do any research' in employment before the Masters, but nearing completion and in the employment context finds the

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need for research to develop an 'understanding of their experiences of a particular situation that I may be looking at'. Even though we do not have information on the applied level of sophistication, this student seems to have shifted during the Masters degree from engaging in research processes only when prompted, to actively using them and initiating these processes to meet real business needs. This student and five others seem to be consistent with 'autonomy' as a goal of education or as a graduate attribute. They also demonstrate the benefits of higher degrees of guidance early in the Masters study, in keeping with studies in psychology (Kirschner, Sweller, & Clark, 2006).

Displaying an opposite flow along the continuum of autonomy, Student 1 demonstrates the use of self-initiated research process in Business before commencing Masters akin to Level 5, yet the degree of autonomy portrayed in the Business Ethics course was Level 2, and the same level 15 months later in employment. Whilst counter-current to operating in increasing conceptual space this particular student demonstrates effectively the notion of *competent autonomy*. He experienced a change in employment context, from the very familiar, in which he was highly innovative in research processes, to a new context in which it was natural for the student to require more structure and guidance. His skill set had not regressed, but his level of competence did not yet match that in the previous more familiar employment context. In agreement with this idea, Student 4 shows that the autonomy level of his research at the end of the Masters programme is not fixed, being more like Level 5 in the employment context, and yet possibly a lower level in Masters courses at the same time period. That is, different contexts may demand, or elicit, differing levels of autonomy for the same person.

The data may help explain the surprise of Scott, Furnell, Murphy, and Goulder (2013) who found their hypothesis that 'student autonomy increases during the period of study' was not supported by their data from students across year levels. This may be in part because the scale they used (Macaskill & Taylor, 2010) is based on a concept of autonomy as an attribute, rather than a variable space. The findings from this current study demonstrate autonomy in keeping with Lewis (1978, p. 157, italics added) who found it 'involves a *fruitful tension* between two forces, one in a direction … [of the] "Person" (personal motivation and intuition) the other towards "Work" (rational disciplined procedure – the demands of the subject)'. This tug-of-war sees the degree of autonomy shifting higher or lower along the spectrum of autonomy according to personal elements and the demands of disciplines, work or required competence. Autonomy is more a relationship between people and their learning environment and less a measurable entity or characteristic that increases unidirectionally: It is more about appropriate levels of conceptual space as each context warrants.

The extent of autonomy that is useful for each student's learning not only shifts then, but may shuttle back and forth between higher prescription and greater scope. In terms of delineating the extent of autonomy in the RSD, the word *level* is tidal, rising and falling as conditions dictate, rather than hierarchical. In the RSD neither a high level of autonomy nor low is more valued: what is elevated is a thoughtful answer to 'how much structure and guidance should I provide?' and 'how much space do these students need?' The answer is dependent on context, student characteristics and educator purpose.

RSD use in a Masters programme may help students understand explicitly that innovation and creativity akin to Levels 4 and 5 will be needed in employment; however, there may be initially low levels of autonomy provided in the programme. Even as

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coursework Masters students are moving more commonly now than previously to PhD study, high levels of competent autonomy in Masters contexts do not necessarily entail Open-ended or Unbounded Research readiness for PhD studies; students may initially need far more structure and guidance as the degree of rigour and conceptual demand increases with the need to develop new knowledge. High levels of autonomy likewise do not guarantee *contextual knowledge*, the top level of the Four Ways of Knowing Model (Baxter Magolda, 1992); however, it may be that the more often a person works at the autonomous end of the RSD spectrum, the more likely their knowledge development will be contextually determined.

The results of this study contrast with literature that presents 'autonomy' as a definitive attribute of graduates, or of studies that advocate for an optimum level of autonomy. However, they are in agreement with interpretations of Vygotsky that consider the educative need for cycles of modelling, scaffolding, withdrawing (Beed, Hawkins, & Roller, 1991; Hmelo-Silver, Duncan, & Chinn, 2007) … and modelling again. Since where a student may best be placed on this continuum of autonomy depends 'on factors such as their degree of familiarity with the task at hand, it is difficult to see how an individual may be deemed to have fallen over a threshold' (Gurr, 2001, p. 84) and become an autonomous learner and researcher; rather they are on a voyage of discovery, operating with increasing autonomy when their competence is commensurate with the tasks at hand.

This study focused on Masters students' perspectives and experiences of autonomy in study and work environments, and it may be that undergraduate students may face similar issues in terms of needed structure or openness in research. However, limitations of the data include that the students interviewed are not representative of the students in the Business Ethics course, let alone students more broadly. Moreover, only students who progressed in their Masters programme were contacted, meaning students who withdrew from the programme are not represented.

Conclusions

The first major implication of this study is for groups of educators who are conceiving of using the RSD to inform the variable extent of autonomy that students require in research-based learning across a degree. This paper demonstrates the potential of the RSD to provide insights that span multiple semesters and further work is needed to determine the efficacy of RSD use to enhance undergraduate and Masters programme coherence in general, and the development of student research skills specifically.

The second major implication of this study concerns RSD use in Masters by coursework degrees to animate these programmes as an effective route to PhD studies. Multiple revisitations of RSD framing in a diversity of content-rich courses may provide students with a highly nuanced, adaptable and translatable sense of research processes and help develop research mindedness. This has been evident in work where explicit use of the RSD in multiple courses across undergraduate degree programmes has enabled research-intensive study, such as at the Honours level, to be more coherent and distinctly helpful in the development of students' research skills (Willison, 2014). Research methods courses on the other hand usefully facilitate the more technical details of qualitative and/or quantitative methods. Across a degree programme, research mindedness and technical research skills may come together to fully equip students with sophisticated research skills. Further

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studies are needed to authenticate the effectiveness of the RSD to guide coordinators to develop coursework Masters-appropriate research pedagogies.

The third major implication relates to the use of the RSD to develop students' research skills in ways that connect to their current or future employment through the development of job-useful attributes, whether they are required to work within confined structures or relatively autonomously. Further studies are required to determine how effectively the RSD can help educators facilitate and assess employment-relevant research skills as they engage students in the shifting dimensions of autonomy.

Acknowledgements

Dr Jan Schapper was the coordinator of the Business Ethics course in this study, and she is greatly missed by her colleagues since her untimely death.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Carrick Institute for Learning and Teaching in Higher Education [grant number CG7-497].

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