Mentoring to develop research self-efficacy, with particular reference to previously disadvantaged individuals

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Abstract

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The development of inexperienced researchers is crucial. In response to the lack of research self-efficacy of many previously disadvantaged individuals, the article examines how mentoring can enhance the research self-efficacy of mentees. The study is grounded in the self-efficacy theory (SET) – an aspect of the social cognitive theory (SCT). Insights were gained from an in-depth study of SCT, SET and mentoring, and from a completed mentoring project. This led to the formulation of three basic principles. Firstly, institutions need to provide supportive environmental conditions that facilitate research self-efficacy. This implies a supportive and efficient collective system. The possible effects of performance ratings and reward systems at the institution also need to be considered. Secondly, mentoring needs to create opportunities for young researchers to experience successful learning as a result of appropriate action. To this end, mentees need to be involved in actual research projects in small groups. At the same time the mentor needs to facilitate skills development by coaching and encouragement. Thirdly, mentors need to encourage mentees to believe in their ability to successfully complete research projects. This implies encouraging positive emotional states, stimulating self-reflection and self-comparison with others in the group, giving positive evaluative feedback and being an intentional role model.

Opsomming

Die mentor van navorsers om selfdoeltreffendheid te ontwikkel, met besondere verwysing na voorheen-benadeelde individue

Dit is noodsaaklik om onervare navorsers te help ontwikkel om produktief te wees. Baie voorheen-benadeelde individue toon 'n gebrek aan selfdoeltreffendheid ten opsigte van navorsing. Hierdie artikel ondersoek hoe hulle gementor kan word om hulle navorsingselfdoeltreffendheid te verhoog. Die studie word be-grond deur die teorie van selfdoeltreffendheid – 'n aspek van die sosiaal-kognitiewe teorie. Insigte wat uit 'n diepgaande studie van sosiaal-kognitiewe teorie verkry is, uit die selfdoeltref-fendheidsteorie en mentorskap, asook uit 'n voltooide men-torprojek, het gelei tot die formulering van drie basiese be-ginsels. Eerstens behoort instellings 'n ondersteunende omge-wing te skep wat selfdoeltreffendheid in navorsing bevorder. Dit impliseer 'n ondersteunende en effektiewe kollektiewe stelsel. Die moontlike effek van prestasie-evaluering- en beloningstel-sels moet ook in ag geneem word. Tweedens behoort men-torprojekte geleenthede te skep vir jong navorsers om op grond van geskikte aksies suksesvol te leer. Protégés moet dus in werklike navorsingsprojekte in klein groepies betrek word. Terselfdertyd moet die mentor vaardigheidsontwikkeling fasili-teer deur afrigting ("coaching") en aanmoediging. Mentors moet protégés derdens ondersteun om te glo in hulle eie vermoëns dat hulle *suksesvol navorsing kan doen. Dit impliseer die fasilitering van positiewe emosionele toestande, die stimulering van selfrefleksie en 'n vergelyking met ander in die groep, positiewe evaluerende terugvoer en om 'n intensionele rolmodel te wees.*

1. Introduction

In South Africa the development of inexperienced researchers, es-pecially previously disadvantaged individuals (PDIs) (those with poor educational backgrounds) and women, has become a key focus (Balfour & Lenta, 2009:8, 9, 13). The urgency of this need became clear from a report revealing that most of South African research output was produced by older white males (Balfour & Lenta, 2009:9; Geber, 2009:676; Mouton as quoted in Christiansen & Slammert, 2005:1048), and that women were responsible for only 17% of research production. By 2006 only 12,8% of rated researchers were black. A similar trend was observed at the University of South Africa, where the most prolific researchers were white and over the age of 50.

At Unisa management identified mentoring as one way to develop novice researchers. To this end the institution introduced a number of mentoring initiatives during 2008 and 2009 with particular application to PDIs, which were underrepresented in the group labelled "productive researchers". This aim to get the numbers right, was in line with government expectations of South African higher education institutions in general (Thaver, 2009:406). Thus, mentors were identified, trained, paired with mentees and expected to report quarterly on progress. The value of mentoring is, however, not only to achieve institutional goals, it is also an expression of the Christian virtues of practical wisdom, love, hospitality, conviction and humility that seek the flourishing of others (Simon, 2003:2).

At the conclusion of a mentoring programme of sixteen months with eleven mentees, it was noted that the PDIs participating in the programme had not fully achieved the agreed upon goals. Informal interviews indicated that these novices seemed to lack research self-efficacy. This is "the extent to which students are confident about carrying out different research tasks, from library research to designing and implementing practical research projects" (Lei, 2008:668). In contrast, prolific researchers have robust self-esteem, resilience and persistence (quoted in Geber, 2009:675). This perceived lack of research self-efficacy confirmed previous findings that a disadvantaged educational background has a negative influence on self-efficacy (Galpin *et al.*, 2003:1).

Unofficially, some mentors have expressed the concern that mentees may become dependent on their mentors. Mentoring should end with separation and redefinition during which mentees should start to function independently (Johnson, 2007:97-103; Steinmann, 2006:14-17). This requires that they develop competencies and skills and a belief in their ability to use those skills effectively.

Reports by proven researchers (none from previously disadvantaged backgrounds), indicate that most of them developed into established researchers by taking responsibility for their own learning (Schulze & Gouws, 2008:140). This ability to learn independently appeared to have been influenced by their research self-efficacy and the outcomes they expected to achieve. Lei (2008:668, 681) confirms that individuals who show high research self-efficacy often become productive researchers, and that self-efficacy is significantly and positively related to skills acquisition (quoted in Powell *et al.*, 2007:103). Researchers such as Schwoerer *et al.* (2005:111-114) have found that self-efficacy, in addition to locus of control (a person's belief about what causes good or bad results in his/her

life), conscientiousness, levels of anxiety, age, cognitive ability and job involvement are significantly related to training motivation and performance.

Whereas general self-efficacy seems to be a stable characteristic, specific self-efficacy is relatively malleable. Eden and Aviram (quoted in Schwoerer *et al.*, 2005:125) conclude that "[a] growing body of research suggests that those initially low in self-efficacy receive significant benefits from interventions that build self-efficacy in the context of training for skills".

In view of the above and in the absence of such investigations in South Africa, as indicated by an electronic search, this article aims to examine how mentoring can enhance the research self-efficacy of novices, in particular of PDIs. Mentoring is seen as "a dynamic, shared personal relationship in which a more experienced person acts as an adviser, guide and role-model for a less experienced person (the protégé)" (Steinmann, 2006:3). From a Christian view-point, mentoring is defined as a relationship in which a mentor helps a protégé reach her/his God-given potential (Biehl quoted in Parker, 2009:52). Adopting a similar point of departure, Martynov (2006:432) declares that the ingredients of mentoring (offering support, advice, encouragement and passing on knowledge and skills) are similar to those of discipleship.

The study reported on here is grounded in the self-efficacy theory (SET). This theory is explained in the conceptual framework of the study presented in the next section.

2. Conceptual framework

SET is an aspect of the social cognitive theory (SCT). This more general framework will, therefore, be explained first. According to Maddux (1995:4) SCT

> … is an approach to understanding human cognition, action, motivation, and emotion that assumes that people are capable of self-reflection and self-regulation and that they are active shapers of their environments rather than simply passive reactors to them.

SCT makes the following assumptions (Maddux, 1995:5-6):

- People have strong symbolising capabilities that allow for internal models of experience, the development and testing of hypo-

theses and the communication of ideas and experiences to others.

• Most behaviour is goal directed and is guided by thought, which is dependent on symbolisation.

• People are self-reflective and thus capable of analysing their own thoughts and experiences. This allows for self-control and self-regulation.

• People learn vicariously by observing other people's behaviour and its consequences.

• Capacities for symbolisation, self-reflection and self-regulation and vicarious learning are made possible by complex neuro-physiological structures.

• The most important assumption of SCT is that environmental events, inner factors (cognition, emotion, self-efficacy and biological events), and behaviour are mutually interacting influences. This is the principle of triadic reciprocality.

SCT also provides the framework for interactive learning used to develop constructivism and cooperative learning. The two basic principles of constructivism are that learners actively assimilate knowledge and that learners construct new ideas or interpret concepts based on their current and past knowledge (McMahon, 1997:3-5). Learning is viewed as a personal endeavour, which implies that knowledge is subjective and learners use their existing knowledge to bridge the gap between known and unknown information. Constructivism, therefore, embodies the idea of building on scaffolding. As an offshoot of constructivism, cooperative learning incorporates the idea that the best learning occurs when students are actively engaged in learning while working in collaboration with peers to accomplish shared goals (McMahon, 1997:5).

As indicated by the principle of triadic reciprocality, the SCT-based framework for designing learning programmes includes self-efficacy. Bandura (1990:316) defines self-efficacy as people's "beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over task demands". Thus, self-efficacy judgements are concerned not with one's skills, but with one's judgements of what one can accomplish with these skills. SET is concerned primarily with the role of social cognitive factors in the triadic model of SCT. The mentee environment and mentee personal agency factors (e.g. internal cognitive and affective

processes, including perceptions of anxiety, outcome expectations, and self-efficacy) influence the mentee's learning process and performance (Barnes, 2004:56).

Self-efficacy is developed through four major sources. In order of importance, these are the following (Evans, 1989:60; Powell, 2007: 105; Wikipedia, 2009):

- *Experience*: Personal assessment of accomplishments is the most important factor influencing self-efficacy. Successes raise expectations and failures lower them.

- *Modelling/Vicarious experience*: Observing others who are successful can generate the expectation that observers will also become successful by modelling observed behaviour. This is particularly true when people recognise similarities between themselves and the models.

- *Social persuasion (encouragement)*: Coaching and receiving positive evaluative feedback on performance lead people to believe that they are able to execute tasks. It is generally easier to decrease than to increase a person's self-efficacy.

- *Physiological and emotional states*: These states can influence self-efficacy judgements; anxiety, for instance, can be a negative influence.

Self-efficacy judgements influence choice of goals, goal-directed effort, persistence and affective experiences (Evans, 1989:54; Schunk, 1995:282; Zimmerman *et al.*, 1992:665). People are more inclined to take on tasks if they believe they can succeed; learners stop trying when they believe that their effort is futile: this is the phenomenon of learnt helplessness (Nicholls quoted in Paris & Byrnes, 1989:179).

Self-efficacy also induces thought patterns: low self-efficacy can lead people to believe that tasks are harder than they actually are, and to attribute failure to poor ability, whereas people with high self-efficacy feel that they are generally in control of their own lives (Chetse, 2008:17). Thus, self-efficacy is related to locus of control. Bandura (quoted in Zimmerman, 1989:11-13) hypothesises that self-efficacy and expected outcomes motivate learners for independent learning. However, research has delivered mixed results, and the true nature of the relationship between self-efficacy and performance is still unknown (Barnes, 2004:60).

The aim of this article is to explain how mentoring can enhance the research self-efficacy of mentees. Insights were gained from an in-depth study of SCT, SET and mentoring, and from a completed mentoring project. In the light of the principle of triadic reciprocality, the article offers suggestions on how institutions can provide environmental conditions that improve research self-efficacy, and how mentors can provide opportunities for appropriate action (behaviour) and encourage mentees to believe in their ability to successfully complete research projects.

3. Environmental conditions contributing to improved research self-efficacy

3.1 Collective system

Collective systems, such as higher education institutions, develop a sense of collective efficacy. Zaccaro *et al.* (1995:309) define collective efficacy as

> [A] sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful concerted response to specific situational demands.

Mentors and mentees need to believe in the abilities of supporting departments to reach goals. Individual research projects often require institutional support in the form of financial support, information exchange, or modelled behaviour by elements of the embedded social context (Zaccaro *et al.*, 1995:306). In addition to the granting of academic leave for research purposes, institutional research support includes computer facilities, a well-resourced library with available staff, a language services department that edits research reports, and statistical support when needed. These can influence collective efficacy beliefs if the support is efficient and timely. However, at Unisa, only one person is available to offer statistical support to students and staff, and is therefore unable to provide the assistance mentees require.

Institutional policies influence mentoring programmes. Mentoring reports at Unisa revealed that policies that use valuable time for administrative purposes impact negatively on mentoring projects. Moreover, policies affect institutional culture. The cultures of organisations allow employees to thrive or to become defensive and feel disempowered (Steinmann, 2006:110). Unisa decided to exercise greater control of academic leave granted for research purposes.

Consequently, three mentees who had completed their previous mentoring project successfully by using academic leave, were unexpectedly refused leave to complete a section of a subsequent project. In the light of their previous achievements, this was experienced as unjust and disempowering.

Appropriate research training develops cognitive skills which can facilitate successful experiences to enhance self-efficacy (Chetse, 2008:23). In one example, the University of KwaZulu Natal offered weekly research seminars in which staff members presented work in progress for critical input by colleagues and mentors (Balfour & Lenta, 2009:14, 15). The aims were to develop confidence in novices to present their work to an academic audience as well as the skills of active listening and questioning to create a research culture.

In another example, the University of the Witwatersrand offered an eight month Research Success and Structured Support programme to early career academics (Geber, 2009:677, 687). The hard skills component included six courses such as research writing skills, effective speed reading, and time and stress management. The novices gained technical skills, developed identities as researchers, and improved their interpersonal dealings. Soft skills were acquired by pairing novices with trained coaches. This helped novices to become more efficient and successful and led to increased self-efficacy.

At Unisa, the research directorate also presented monthly research related workshops. Topics covered included academic writing, research designs and data collection methods. When one group of participants in the previous project started with their qualitative data analysis, workshop participation provided constructive training that enabled them to complete and publish an article.

Mentors also provide personal support to mentees to acquire cognitive skills and self-beliefs that may enable them to succeed. However, Thaver (2009:410) notes that there is a great deal of ambivalence regarding the intellectual support for research conducted by black academics, especially when the investigation departs from a white, western and male epistemic norm. Mentors should be willing to work with the meanings mentees assign to the world of work and establish a relationship of trust, mutual respect and commitment (Greyling & Du Toit, 2008:976).

In the light of the above, institutions should carefully select directors to drive mentoring initiatives:

> It is … clear that to direct a mentoring programme takes expertise; one must be able to work with, motivate, match, and empower faculty, be detail oriented, and have some knowledge of evaluation. (Quoted in Simon, 2003:77.)

A key feature of the mentoring programme at KwaZulu Natal that was referred to was the accountability of mentors and mentees (Balfour & Lenta, 2009:17). Mentees signed commitment contracts to attend meetings with mentors, present seminars, attend conferences (for which funding was provided) and work towards publication.

Mentors themselves need to be trained (Simon, 2003:76, 87). At the Zimbabwe Open University the three issues that affected a mentoring programme most, were lack of mentor training, lack of incentives for mentors and limited time for mentoring (Mukeredzi *et al.*, 2009:340). At Unisa, training was offered to accompany relevant literature and an ongoing mentoring forum. This resulted in a mentoring culture that improves the likelihood of successful experiences. As indicated by SET, such personal mastery experiences are one of the most powerful ways of instilling self-efficacy.

3.2 Performance ratings and reward systems

Rewards in educational settings enhance self-efficacy when they are linked with mentees' actual accomplishment and not given simply for participation (Schunk, 1989:98). However, when failure is anticipated, focusing on extrinsic rewards can lead to low efficacy and the adoption of self-protective and self-handicapping strategies (Perry *et al.*, 2006:238). This may be applicable to PDIs with low research self-efficacy. The answer seems to lie in small rewards (such as coffee and cake in the staff cafeteria), negotiated between mentors and mentees, when sub-goals are reached to signify progress. SET indicates that, apart from personal factors (goal setting, information processing), situational factors such as rewards and the mentor's feedback provide cues that signal how well mentees are learning, and which they use to assess self-efficacy for learning. Motivation is enhanced if mentees perceive that they are making progress (Schunk, 1995:283).

Some situational factors can inhibit the development of self-efficacy. Chetse (2008:15) found that events in the work environment such as

performance ratings and working to stricter deadlines can have a negative influence on individuals' locus of control, and thus also on effect and behaviour within the triadic reciprocality model of SCT.

4. Opportunities for the learner to experience successful learning as a result of appropriate action

4.1 Research projects as appropriate action

Mentoring should equip mentees with cognitive skills that will help them to succeed, since SET indicates that mastery experiences are one of the most powerful ways of instilling self-efficacy. Guidance by a mentor who is a skilled researcher should, therefore, involve mentees in appropriate behaviour. Constructivism points to the necessity of participation in actual research projects in accordance with the following principles: learning is an active process, knowledge is individually and socially constructed, and learning is a process of making sense of the world and requires meaningful, challenging problems to solve (Fox, 2001:24). Research has confirmed that novices prefer to learn about research by being involved in actual research projects under the guidance of a skilled mentor (Schulze, 2009b:41). Lei (2008:679, 682) determined that graduate students acquired a better understanding of research methodology concepts and felt more confident after having conducted a major research project involving real-life problems within a training environment. This led to improved research self-efficacy, expanded students' view of the utility of research, and reduced anxiety.

The responsibility of a mentor includes supporting mentees to identify interesting and ill-structured problems to research, while being sensitive to the fact that research topics with an African orientation are often accorded less value than those with a European focus (Thaver, 2009:411). Thereafter, mentors need to assist mentees to set clear goals for the project. This enables novices to set priorities and it builds internal accountability (Geber, 2009:681). Goal setting, meeting frequently to evaluate progress, and identifying solutions to problems build on the concept of scaffolding that facilitates learning. The importance of scaffolding has also been pointed out by Greyling and Du Toit (2008:969). During the research project, mentors provide information and exposure, foster networks, and challenge mentees (Cunningham, 1999:443; Johnson, 2007:45-70; Perna *et al.*, 1995:34; Steinmann, 2006:80; Wilson *et al.*, 2002:319).

Mentees need support with the writing of research articles in the standard form. This includes the formal language required and the

development of an argument that leads to fitting conclusions (Balfour & Lenta, 2009:15, 16). Of all the hard skills offered in the training course at Wits, the research writing skills component was rated as most valuable by participants (Geber, 2009:682). They learnt to cope with feedback and reviewer's comments, acquired useful techniques and learnt to write consistently and daily. The course was successful at changing their self-perceptions as academic writers. Considering that PDIs are often impeded in their ability to express their ideas in writing, mentees could articulate their views orally before being supported to move to text.

Sungur and Tekkaya (2006:315) showed the importance of devoting adequate time to research in order to aid the development of research self-efficacy. The duration of their research project was only six weeks. It succeeded in improving participants' goal orientation and critical thinking, but not their self-efficacy. Mentees are under enormous pressure to allocate their time wisely (Geber, 2009:687), since they need quality time to complete their mentoring projects (Mukeredzi *et al.*, 2009:340). However, an analysis of the quarterly mentoring reports, indicated that lack of quality time was a major challenge. Thaver (2009:409, 410) also found that time allocated for research that was viewed as fair by white academics, was experienced as limited by black academics. Inexperienced black females also tend to assign less of their time to the task of acquiring research skills. This results in self-fulfilling prophecies regarding their ability to become researchers.

4.2 Group research with social interaction

It was found during the course of a previous mentoring project that some mentees prefer to work individually rather than in groups (Schulze, 2009a). However, as an offshoot of constructivism, cooperative learning incorporates the idea that the best learning occurs when students are actively engaged in learning while working in collaboration with peers (McMahon, 1997:5). The students are expected to carry out their task without the direct supervision of the instructor (Cohen quoted in Powell *et al.*, 2007:104). Peers share information, provide one another with emotional support and feedback and increase their chances of success. It is, therefore, argued that mentoring to develop research self-efficacy needs to involve two or three mentees in team research to investigate a problem of their own choice. Mentees bring individual strengths to a project and multiple tasks can be dealt with efficiently (Morrison-Beedy *et al.*, 2001:292). Powell *et al.* (2007:110) identified higher self-efficacy

among learners who worked in cooperative teams than among those who worked individually.

Mentors need to help define different roles for mentees in group projects and identify theoretical frameworks that guide research projects. Mentors also need an understanding of group dynamics and facilitation (Johnson, 2007:71). Activities should foster self-efficacy through the use of social interaction that highlights self-comparison or progress, but de-emphasises competition.

It is important that mentees have faith in the abilities of the members of a group to complete research projects successfully – their collective efficacy. Collective efficacy is "the collective belief of a group that it can be effective" (Shea & Guzzo quoted in Zaccaro *et al.*, 1995:308). A single instance of group failure can be motivational. However, a pattern of failure may lower group efficacy (Zaccaro *et al.*, 1995:316-317).

The above has implications for group composition. Informal interviews have indicated that PDIs prefer mixed racial groups. Thaver (2009:412) also points out that the National Research Foundation strongly encourages white and black academics to undertake collaborative research. However, racial composition influences group dynamics. For example, in a project involving a mixed racial group, two black participants disagreed about an issue. In the resulting conflict situation, they were frustrated at the lack of involvement of a white participant, and were of the opinion that that person's non-participation was motivated by racial sensitivity (Schulze, 2009a). Group size and cohesiveness also influence perceptions of efficacy. For example, participants in a mentoring project indicated that a group of five found it difficult to arrange meetings at times that suited everybody. They, therefore, recommended groups of two or three researchers only.

A mentor's mentorship style affects the collective efficacy of a group. Collective efficacy is enhanced by a style that is supportive (establishes a cohesive and supportive workgroup environment); directive (clarifies roles and expectations, rules and planning procedures); participative (mentees are consulted on group decisions); and achievement oriented (difficult goals and high performance standards are established) (Zaccaro *et al.*, 1995:318).

4.3 Coaching and encouragement by the mentor

Hawkins (quoted in Parker, 2009:55) states that

> … coaching helps people go from where they are to where they want to be. It is an action-oriented partnership that helps people stay focused on the results they want to achieve.

Coaching focuses on skills and equipping. Through coaching, novices can learn research and writing skills as well as how to balance work and life, interpersonal skills, communication, assertiveness and dealing with criticism or departmental policies (Geber, 2009:685).

SET indicates that coaching and positive feedback can lead mentees to believe in their competence to conduct research (Barnes, 2004:57). Honest, consistent recognition of progress raises self-efficacy (Cunningham, 1999:442; Tillman quoted in Johnson, 2007:145; Morrison-Beedy *et al.*, 2001:294). To facilitate such growth, mentors need to be physically and psychologically accessible, provide mentees with affirmation of their worth, be intentional role models, provide socialisation opportunities for the inculcation of professional values, deliver constructive criticism and allow increasing collegiality (Cunningham, 1999:443; Johnson, 2007:45-70; Steinmann, 2006: 80; Wilson *et al.*, 2002:319).

Although mentees prefer humble mentors (Martynov, 2006:431), an optimal level of mentee self-efficacy cannot develop without favourable levels of mentor self-efficacy (Fernando & Hulse-Killacky, 2005:300). Mentors with low self-efficacy may avoid planning activities that they believe exceed their abilities, may not persist when mentees have difficulties, and may put in little effort. For example, mentors unskilled in quantitative research may avoid supporting mentees who are interested in quantitative projects.

The style of mentoring influences the self-efficacy of mentees. Fernando and Hulse-Killacky (2005:296) identify supervision style as either attractive (friendly, trusting, supportive), interpersonally sensitive (intuitive, invested, reflective) or task oriented (structured, goal oriented, evaluative). Their investigation show a significant correlation between the task-oriented style and learners' self-efficacy, although the other two significantly influence satisfaction with supervision. In the mentoring project involving three groups, the mentor's task-oriented style worked well with two groups, but not with the group that consisted mainly of PDIs. This indicated the need for a more people-oriented mentoring style.

Steinmann (2006:79) distinguishes between push (directive) and pull (non-directive) behaviour. Mentors engage in pull behaviour when they operate according to the mentees' agenda and wish to under-

stand them before being understood themselves. Examples include focusing on shared visions, acting as a role model, listening actively and asking questions in order to understand. These activities differ from instructing and telling, although the latter are sometimes appropriate. Mentors who constantly use push behaviour are likely to create either resistance or dependence.

5. Encouraging mentees to believe in their ability to successfully complete research projects

5.1 Positive emotional state

SET indicates that physiological and emotional states can influence self-efficacy judgments. The pressure under which academics are to produce accredited publications, while struggling with tuition work-loads, administrative responsibilities and community work, creates tension (Thaver, 2009:409). Hence, mentees consistently value the emotional dimension of mentoring as much as the training dimension. As important ingredients for emotional support, Martynov (2006:431) identifies emotional warmth, unconditional positive re-gard, active listening, humour and tolerance. The need for mentors to be friendly, supportive and empathetic was also identified as cru-cial by mentees (Schulze, 2009b:41).

Mentors need to get to know their mentees and affirm their strengths and potential. The most effective affirmation is both consistent and unconditional. Philip-Jones (quoted in Johnson, 2007:57) found that successful mentees had mentors who

> … encouraged them to be all they could be, with unprejudiced, unfailing confidence in them. This unflagging faith boosted their self-esteem in a way that mere advice or a pat on the head never could.

Mentors also need to see their mentees' shortcomings and accept them as imperfect. This may be particularly important for PDIs.

Johnson (2007:148) emphasises that mentors should do their best to alleviate anxiety and bring down unrealistic expectations. Mentors need to establish a strong relationship with mentees so that the latter will confide their anxieties when these emerge, help mentees to set realistic goals and offer mentees a wider perspective on perceived crises so that these can be solved.

Lei (2008:677) found that the negative attitudes displayed by stu-dents towards a postgraduate research methodology course for

which they were enrolled, were associated to a significant degree with high research anxiety and task difficulty, along with low research interest and self-efficacy, and perceptions of little research usefulness. Significant anxiety prior to performing a task is a negative predictor of self-efficacy (Barnes, 2004:59).

Stress is minimised by engendering confidence and enthusiasm (Boström & Lassen, 2006:185). Through a sufficient number of positive experiences mentees can reframe their self-concepts. Enhancing mentees' perceptions of control and resilience as well as relevant skills builds self-efficacy (Schwoerer *et al.*, 2005:114, 116). Methods to do this include role play to provide an experience of success, for example role play entailing the conducting of an interview (enactive mastery), models of performance (vicarious experience), coaching and encouragement (verbal persuasion), and reducing the emotional threat of rejection (managing physiological states).

Personal health and self-awareness of mentors are also important (Barnes, 2004:57; Johnson, 2007:82, 113). Mentors need to take care of themselves (Martynov, 2006:431). Institutions need to nurture mentors, since this is a vital part of having a healthy mentoring community (Simon, 2003:88). Informal interviews at Unisa have shown that excessive auditing and control of mentoring dyads take up valuable time and create negative attitudes and resistance.

5.2 Stimulate self-reflection and self-comparison with others in the group

Metacognition is the thinking about thinking – the "awareness and consciousness of the psychological processes involved in perception, memory, thinking and learning" (Cofield quoted in Boström & Lassen, 2006:183). SET shows that self-reflection and self-evaluation of accomplishments are the most important factor influencing self-efficacy. Individuals who reflect on and understand their own learning are able to take control of it.

Mentors can stimulate the self-reflection of mentees by asking appropriate questions. This is one of the central tools used to "focus a conversation, foster exploration, push the client to dig deeper and reach higher and ensure commitment" (Stoltzfus quoted in Parker, 2009:60). This also prevents mentoring as a "one-way process of conveying dictatorial injunctions" and facilitates "co-operative and critical meaning-making exchanges" (Greyling & Du Toit, 2008:959). Mentors can ask three basic kinds of questions: investigative –

questions that probe for basic types of information; discovery – questions that assess experience; and empowering – questions that elicit information about the aims that need to be reached.

In a project reported on in Perry *et al.* (2006:239), self-reflection was stimulated through the holding of monthly meetings with participants. During these meetings the participants first spent ten minutes writing about what they had been thinking and trying to do. This was followed by "air time" during which each participant spoke about events. A focus group discussion followed, during which issues were raised and discussed and everybody examined their own beliefs and understandings. After this, new actions were planned. Each meeting ended with the making of new commitments.

The ability to use comparative information effectively depends on higher order levels of cognitive development and experience (Schunk, 1989:100). It is important that long- and short-term goals be set at the start of research projects. In order to determine progress, performance needs to be compared regularly (for example) with goals that were set. Mentors need to provide feedback to mentees about their progress if they cannot determine it on their own. This issue is addressed next.

5.3 Evaluative feedback

Barnes (2004:60) found that trainees who lack the requisite skills for accurate self-appraisal often depend on their trainers for detailed feedback on their performance. According to SET, consistent positive feedback on low-level skills in areas in which a novice is likely to succeed, accompanied by extensive live modelling of the skills the mentee is required to perform, enhance self-efficacy. Steinmann (2006:74, 97), therefore, identifies the continuous scheduling of reviews (for example monthly) as one of the fundamentals of mentoring. This ensures that the relationship is kept alive.

For novices I would argue that written feedback with detailed explanations and examples is helpful. In a mentoring project involving a group that included PDIs, the mentor gave feedback orally and was under the impression that participants understood what had been said. However, it later transpired that this had led to an argument in which the mentees differed significantly about what the mentor had recommended (Schulze, 2009a).

Mentees' need for criticism to be positive was determined in a previous study (Schulze, 2009b:39). Constructive feedback should be

given "in an atmosphere of respect, support, professionalism, growing confidence, and intellectual rigor" (Lei, 2008:682). Johnson (2007:54) emphasises that mentors should first provide affirmation and strong doses of positive feedback before they confront and correct.

For feedback to build confidence, mentors should share their own reflections, emotions and self-limiting beliefs, create a positive mood through their tone of voice and facial expressions, encourage mentees to express their views and disagree with the mentor, confront poor performance with compassion and resolve conflict immediately (Steinmann, 2006:110). Mentors and mentees should seek solutions together.

5.4 Intentional, appropriate role models

SET indicates that modelling can generate expectations that observers can also be successful. Mentors should appreciate their function as role models. Prolific researchers model positive self-esteem, good time and stress management skills, working efficiently, consistent daily writing, networking with fellow scholars, and stable relationships (Geber, 2009:675). Modelling can be particularly influential at the beginning stages of mentoring if modelling behaviours are clear and deliberate (Barnes, 2004:59; Schwoerer *et al.*, 2005:126). However, this is not to imply that mentees need to "imitate their master's voice" – mentees need to find their own voice that is free to accept or reject that of their mentors (Waghid quoted in Hugo, 2009:705, 706). Mentees can critically negotiate the terrain in their own terms and mentors need to be able to look at the world through the eyes of mentees (Greyling & Du Toit, 2008:961). At the same time, mentees need to submit to the rules, processes and realities of academic communities of practice as a precondition to finding their voice within it.

Mentors should sponsor only faculty with legitimate promise and motivation (Johnson, 2007:53; Van Wagner, 2009:2). For example, the mentoring project referred to, revealed that not all academics aspire to be researchers. One participant admitted to an interest in tuition only (Schulze, 2009a). Balfour and Lenta (2009:18) also found that there are academics of all age, gender and race groups who have not internalised the idea of research as part of academics' work. Mentoring these unmotivated novices diminishes one's power to successfully select others with potential.

To facilitate modelling, mentors and mentees need to be carefully matched in consideration of the factors that follow (Wilson *et al.*, 2002:321-322). In South Africa, mentoring relationships involving PDIs may be across races, and the possible influence of this on the mentoring relationship needs to be noted. Thomas (quoted in Perna *et al.*, 1995:41) found that African Americans experience same-race relationships as more supportive than cross-race relationships. Some authors (Kartje, 1996:119; Perna *et al.*, 1995:35; Wilson *et al.*, 2002:320) have found that if mentoring is across races, mistrust and stereotyping can influence the mentor-protégé relationship. Other authors, (Goodwin *et al.*, 1998:338; Henry *et al.*, 1994:40-42), however, have different opinions. Johnson (2007:174) emphasises that mentors need to establish trust early in a cross-race mentoring relationship. Trust is promoted when a mentor acknowledges the effects of racism and communicates a genuine interest in the mentee's own narrative of belonging to a certain race. Thomas (quoted in Johnson, 2007:176) also recommends that mentors should not deny racial differences, but should instead discuss and deal with them in a sensitive way. Mentors should be respectful of diversity, protect mentees from negative critics with racial bias, and should not impose their own cultural values on mentees (Steinmann, 2006:92, 94).

Gender has also been noted as a possible influence. Women, often preferring female to male mentors, are sensitive to the interpersonal skills of the mentor (Johnson, 2007:157; Wilson *et al.*, 2002:322), and obtain more psychosocial benefits from their mentoring relationships than men (Henry *et al.*, 1994:39). Participants in cross-gender mentoring relationships may be incompatible (Perna *et al.*, 1995:35) and less productive than same-gender participants (Wilson *et al.*, 2002:321-322). However, this is not confirmed by all studies (Goodwin *et al.*, 1998:338).

Developing self-efficacy through modelling has implications for mentoring via e-mail. In the mentoring project reported on (Schulze, 2009a), two relatively experienced researchers who participated, because they merely wanted to refine their research skills, were mentored effectively predominantly by means of electronic communication. However, I would argue that most novices need regular meetings with mentors in person to facilitate modelling.

Excellent mentors model competence, professionalism and ethical decision making while at the same time revealing failings (Johnson, 2007:21): Janice Morse (2004), editor of *Qualitative health research* and internationally respected qualitative researcher, wrote in an editorial:

> I am claiming the world's largest collection of rejection slips. The record for a single article is held by one I consider one of my best – it received rejections from six journals.

She points out that rejection may be for many reasons other than poor quality and that the request to "revise" is good news. Such information may change mentees' perceptions that rejection and revision indicate failure.

6. Conclusion

It is crucial to enhance the research self-efficacy of novices, in particular of PDIs. An in-depth study of relevant literature complemented by insights gained from mentoring projects provide some guidelines as to how research self-efficacy of mentees can be enhanced. These relate to the three key role players in mentoring programmes, namely the mentee, the mentor and the institution (including how mentoring programmes are managed).

Mentees need to be selected only for their potential and motivation to become researchers. Unfortunately, Integrated Performance Management Systems' (IPMS) evaluations initiate the participation in research mentoring programmes by those that feel obligated to participate, but whose main interests lie elsewhere. Perhaps promotion and evaluation criteria centring mainly on research output, need reconsideration. Mentees should be included for being enthusiastic to learn and committed to reach the goals negotiated with their mentors.

As key role players mentors can determine the success of mentoring projects. Although mentors need to be skilled and knowledgeable researchers, I argue that the most prolific researchers are not necessarily the best mentors. SET provides some guidelines on the kind of mentors PDIs require. It is easy to assume that a task-driven style may facilitate independence simply because it focuses on the issue at hand (the research project that needs completion), thus forcing mentees to "sink or swim". However, SET indicates that the inclusion of a people-oriented style, characterised by support, advice and encouragement, is vital. Such an approach facilitates research self-efficacy and prevents learnt helplessness. This needs greater input, both quantitative and qualitative, from mentors. For example, detailed feedback in both oral and written form is necessary to ensure clarity on the way forward. Mentees also need to be allowed to express themselves orally to negotiate written expression. Much affirmation is needed before corrections for improvement are speci-

fied or constructive criticism offered. Regular meetings between mentors and mentees are, therefore, important. These show mentor commitment and offer opportunities for questioning, reflecting and learning. The before mentioned approach requires dedicated mentors who support the aims of mentoring.

To enable the above, mentoring programmes need to be well managed. Institutions should provide significant support (not control) in the various ways explained in the present article. This includes being sensitive to policies and practices that leave academics with little uninterrupted time for research. This impacts negatively on novices (including PDIs) in particular, simply because they are less experienced in time management. It is also clear that research training in hard skills (e.g. time management and writing skills) complements mentoring programmes in the development of research self-efficacy. Managers also need to appreciate and nurture mentors. This includes considering mentorship responsibilities in the work allocation of mentors or rewarding them in some way.

Successfully mentoring novices (including PDIs) for research self-efficacy will enable them to take responsibility for their own further development in order to become productive researchers, equipped to replace experienced colleagues when they retire. This is the ultimate goal of mentoring.

List of references

BALFOUR, R.J. & LENTA, M. 2009. Research capacity development: a case study at the University of KwaZulu-Natal. *South Africa journal of higher education*, 23(1):8-20.

BANDURA, A. 1990. Some reflections on reflections. *Psychological inquiry*, (1):101-105.

BARNES, K.L. 2004. Applying self-efficacy theory to counselor training and supervision: a comparison of two approaches. *Counselor education and supervision*, 44(1):56-69.

BOSTRÖM, L. & LASSEN, L.M. 2006. Unraveling learning, learning styles, learning strategies and meta-cognition. *Education & training*, 48(2 & 3): 178-189.

CHETSE, E. 2008. The relationship between self-efficacy and intent to leave during organisational downsizing in an insurance organization. Pretoria: Unisa. (Unpublished M.A. dissertation.)

CHRISTIANSEN, I.M. & SLAMMERT, L. 2005. A multi-faceted approach to research development. (1): Addressing the myths. *South African journal of higher education*, 19(6):1047-1061.

CUNNINGHAM, S. 1999. The nature of workplace mentoring relationships among faculty members in Christian higher education. *The journal of higher education*, 70(4):441-463.

EVANS, R.I. 1989. Albert Bandura: the man and his ideas – a dialogue. New York: Praeger.

FERNANDO, D.M. & HULSE-KILLACKY, D. 2005. The relationship of supervisory styles to satisfaction and supervision and the perceived self-efficacy of master's level counseling students. *Counselor education and supervision*, 44(4):293-304.

FOX, R. 2001. Constructivism examined. *Oxford review of education*, 27(1):23-35.

GALPIN, V., SANDERS, I., TURNER, H. & VENTER, B. 2003. Gender and educational background and their effect on computer self-efficacy and perceptions. *Technical report TR-Wits-CS-2003-0*. Johannesburg: University of the Witwatersrand, School of Computer Science. http://www.cs.wits.ac.za/ Date of access: 13 Jul. 2009.

GEBER, H. 2009. Research success and structured support: developing early career academics in higher education. *South African journal of higher education*, 23(4):674-689.

GOODWIN, L.D., STEVENS, E.A. & BELLAMY, G.T. 1998. Mentoring among faculty in schools, colleges, and departments of education. *Journal of teacher education*, 49(5):334-343.

GREYLING, W.J. & DU TOIT, P.H. 2008. Pursuing a constructivist approach to mentoring in the higher education sector. *South African journal of higher education*, 22(5):957-980.

HENRY, J.S., STOCKDALE, M.S., HALL, M. & DENISTON, W. 1994. A formal mentoring program for junior female faculty: description and evaluation. *Initiatives*, 56(2):37-45.

HUGO, W. 2009. Spiraling reference: a case study of apprenticeship into an academic community of practice. *South African journal of higher education*, 23(4):703-721.

JOHNSON, W.B. 2007. On being a mentor: a guide for higher education faculty. Mahwah: Erlbaum.

KARTJE, J.V. 1996. O mentor! My mentor! *Peabody journal of education*, 71(1):114-125.

LEI, S.A. 2008. Factors changing attitudes of graduate school students toward an introductory research methodology course. *Education*, 128(4):667-685.

MADDUX, J.E. 1995. Self-efficacy theory: an introduction. (*In* Maddux, J.E., *ed*. Self-efficacy, adaptation, and adjustment: theory, research, and application. New York: Plenum. p. 3-36.)

MARTYNOV, V. 2006. The elements of mentoring. *Christian education journal*, 3(2):429-435.

MCMAHON, M. 1997. Social constructivism and the world wide web: a paradigm for learning. http://www.ascilite.org.au/conferences/perth97/papers/Mcmahon/Mcmahon.html Date of access: 20 Nov. 2009.

MORRISON-BEEDY, D., ARONOWITZ, T. & DYNE, J. 2001. Mentoring students and junior faculty in faculty research: a win-win scenario. *Journal of professional nursing*, 17(6):291-296.

MORSE, J.M. 2004. When persistence wears thin: editorial. *Qualitative health research*, 14(3):297-298.

MUKEREDZI, T.G., NDAMBA, G.T. & WEDA, Z.L. 2009. Teacher development through distance education: mentor perceptions of mentoring. *South African journal of higher education*, 23(2):340-355.

PARIS, S.G. & BYRNES, J.P. 1989. The constructivist approach to self-regulation and learning in the classroom. (*In* Zimmerman, B.J. & Schunk, D.H., *eds*. Self-regulated learning and academic achievement: theory, research, and practice. New York: Springer. p. 169-200.)

PARKER, S. 2009. The supervisor as mentor-coach in theological field education. *Christian education journal*, 6(1):51-63.

PERNA, F.M., LERNER, B.M. & YURA, M.T. 1995. Mentoring and career development among university faculty. *Journal of education,* 177(2):31-45.

PERRY, N.E., PHILLIPS, L. & HUTCHINSON, L. 2006. Mentoring student teachers to support self-regulated learning. *The elementary school journal*, 106(3):237-256.

POWELL, A., BORDOLOI, B. & RYAN, S.D. 2007. Data flow skills acquisition: impact of cooperative versus individual learning. *Journal of information systems education*, 18(1):103-112.

SCHULZE, S. 2009a. Mentoring novice researchers in higher education: a "communities of practice" perspective. *Koers*, 74(1 & 2):117-137.

SCHULZE, S. 2009b. A model for research mentoring in higher education: a case study in the field of education. *Journal of educational studies*, 8(4):29-46.

SCHULZE, S. & GOUWS, F.E. 2008. Proven researchers' perceptions of influences on academics' research output: a case study. *Acta academica*, 40(2):135-158.

SCHUNK, D.H. 1989. Social cognitive theory and self-regulated learning. (*In* Zimmerman, B.J. & Schunk, D.H., *eds*. Self-regulated learning and academic achievement: theory, research, and practice. New York: Springer. p. 83-110.)

SCHUNK, D.H. 1995. Self-efficacy and education and instruction. (*In* Maddux, J.E., *ed*. Self-efficacy, adaptation, and adjustment: theory, research, and application. New York: Plenum. p. 281-304.)

SCHWOERER, C.E., MAY, D.R., HOLLENSBE, E.C. & MENCL, J. 2005. General and specific self-efficacy in the context of a training intervention to enhance performance expectancy. *Human resource development quarterly*, 16(1):111-129.

SIMON, C.J. 2003. Mentoring for mission. Cambridge: Eerdmans.

STEINMANN, N. 2006. Fundamentals for effective mentoring: raising giant killers. Randburg: Knowes.

SUNGUR, S. & TEKKAYA, C. 2006. Effects of problem-based learning and traditional instruction on self-regulated learning. *The journal of educational research*, 99(5):307-317.

THAVER, B. 2009. Diversity and research practices among academics in South African universities: race for the market. *Perspectives in education*, 27(4):406-414.

VAN WAGNER, K. 2009. Social learning theory. http://psychology.about.com/od/developmentalpsychoogy/a/sociallearning.htm Date of access: 2 Jul. 2009.

WIKIPEDIA. 2009. Self-efficacy. http://en.wikipedai.org/wiki/Self-efficacy Date of access: 2 Jul. 2009.

WILSON, P.P., PEREIRA, A. & VALENTINE, D. 2002. Perceptions of new social work faculty about mentoring experiences. *Journal of social work education*, 38(2):317-332.

ZACCARO, S.J., BLAIR, V., PETERSON, C. & ZAZANIS, M. 1995. Collective efficacy. (*In* Maddux, J.E., *ed*. Self-efficacy, adaptation, and adjustment: theory, research, and application. New York: Plenum. p. 305-385.)

ZIMMERMAN, B.J. 1989. Models of self-regulated learning and academic achievement. (*In* Zimmerman, B.J. & Schunk, D.H., *eds*. Self-regulated learning and academic achievement: theory, research, and practice. New York: Springer. p. 1-25.)

ZIMMERMAN, B.J., BANDURA, A. & MARTINEZ-PONS, M. 1992. Self-motivation for academic attainment: the role of self-efficacy beliefs and personal goal setting. *American educational research journal*, 29(3):663-676.

Key concepts:

mentor
previously disadvantaged individuals
protégés
self-efficacy: research
self-efficacy: theory
social cognitive theory

Kernbegrippe:

mentor
protégés
selfdoeltreffendheid: navorsing
selfdoeltreffendheid: teorie
sosiaal kognitiewe teorie
voorheen-benadeelde individue