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**Self-authorship theory and medical education: AMEE Guide
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Abstract

Responding to the healthcare needs of the 21st century is a challenge for medical education, requiring a holistic curriculum that stimulates intellectual growth and facilitates personal development of all learners. Self-authorship theory has a focus on the essential development of cognitive maturity, an integrated identity and mature relationships. The educational application of self-authorship situates learning in the experiences of learners and challenges learners' current worldview enabling them to take responsibility for their own decisions and actions. Implications for curriculum development and implementation are discussed, including the need to provide a challenging, yet supportive, learning environment. The use of self-authorship theory to inform educational research is also discussed.

Practice Points

- Medical education for the 21st century requires a holistic curriculum that stimulates intellectual growth and facilitates personal development.
- Self-authorship theory has a focus on the development of cognitive maturity, an integrated identity and mature relationships. These are essential attributes for future healthcare professionals.
- The educational application of self-authorship situates learning in the experiences of learners and provides a challenge to learners' current worldview, enabling them to take responsibility for their own decisions and actions.
- Curriculum development and implementation for self-authorship needs to include challenge to existing worldview within a supportive learning environment.
- Self-authorship theory can inform educational research, especially when an understanding of the developmental aspects is required.

Introduction

There has been increasing interest in transforming medical education to ensure that graduates are appropriately trained to meet the complex healthcare needs of the 21st century, including the challenge of an increasing ageing population, a rising burden of chronic diseases and an ever increasing tide of scientific advances, including genetics and the use of technology for personalised healthcare (Bhutta et al 2010; Cooke, et al, 2010; Frenk et al 2010). Future healthcare will be in a world of “supercomplexity” in which healthcare professionals will be challenged on a daily basis by a variety of complex intellectual and psycho-social demands that require individuals to make decisions that integrate knowledge, beliefs and values about the world within which he/she lives (Barnett 2000). Horton (2010) also highlights the need to have a new kind of professionalism to provide future healthcare, with an emphasis on being patient-centred, team-based and inter-professional.

Responding to the future challenge of healthcare requires a more holistic approach to medical education, with a greater emphasis on the intrinsic aspects of the curriculum (Barnett 2000).

The future curriculum will need to not only stimulate intellectual growth, with the development of cognitive maturity, but also facilitate the emotional, cultural and social development of all learners, with the personal development of an integrated identity and mature relationships (Saito 2003). However, the current trend for competence-based medical education does not easily address the essential growth and development aspects of learners (Frank et al 2010).

Cognitive maturity is at the core of intellectual growth and recognises that most learners have an uncritical acceptance of the knowledge, beliefs and values that inform his/her decision making to direct his/her actions (Lipman 2003). The essential aspect of the intellectual growth of a person is the meaning-making that involves critically understanding his/her

1
2
3 assumptions about the vast amount of different information that he/she constantly receives
4
5 (King & Kitchener 1994).
6
7

8 Personal development is an ill-defined concept but can be considered to be the individual
9
10 journey to become a “fully functioning person” (Rogers & Frieberg 1994). This can be
11
12 described as a person who has developed an overall self-awareness of his /her beliefs and
13
14 values to clearly guide his/her decision-making and actions when faced with the demands of
15
16 life. This developmental meaning- making process is also an essential aspect of a person’s
17
18 overall well-being and is associated with improved psycho-social health and resilience
19
20 (Wong 2013).
21
22
23

24 A critical period in a person’s development journey is between late adolescence and early
25
26 adulthood (Levinson 1986). This is also the time when most future doctors will enter medical
27
28 school. Understanding the importance of this development journey of medical students can
29
30 inform medical educators on how best to provide a curriculum that can offer appropriate
31
32 educational experiences that facilitate the intellectual growth and personal development of all
33
34 students. This understanding is particularly important at the present time when there are
35
36 increasing pressures to shorten medical school training and also to be ready for practice by
37
38 the end of training (Dorsey et al., 2006).
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43 In this Guide, we present self-authorship theory as a potential underpinning integrative
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45 perspective that offers useful insights into understanding the process of development and
46
47 learning in medical students, and also how the curriculum can be transformed to
48
49 appropriately respond to the challenges of healthcare in the 21st century. The self-authorship
50
51 perspective highlights the intrinsic aspects of the medical curriculum so that learners can
52
53 develop both personally and professionally, with the intention of supporting them in their
54
55 journey to become future healthcare professionals. We present illustrative examples of
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3 curriculum transformation in educational contexts outside medical education that have been
4 informed by a self-authorship perspective but we also provide clear guidance on how the
5 essentials principles can be used in medical education. We also provide advice on how self-
6 authorship can be assessed, either for educational evaluation or research purposes.
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11 12 13 14 15 16 **Features of self-authorship theory**

17
18 Self-authorship theory, as proposed by Kegan (1995) and Magolda (2008) is a constructive –
19 developmental educational perspective of a person’s journey of development. The
20 “constructive” aspect considers that learning is an active process of constructing, or building
21 understanding and meaning-making from experiences, and the “developmental” aspect
22 recognises that the constructive process occurs over time (Magolda 1999). This perspective
23 highlights the important potential of the medical school, with a four or five year learning
24 experience, for facilitating self-authorship.
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35 There are two great strengths of self-authorship theory as proposed by Kegan and Magolda.
36 First, self-authorship has been created through a “bottom up” process, using findings from
37 several key research studies of learners between late teens and early adulthood (Kegan 1995 ;
38 Magolda 2008). Second, self-authorship theory is integrative and includes several dimensions
39 compared with other student developmental theories (Evans et al 2009). For example, the
40 developmental model proposed by Belenky et al (1986) is limited to intellectual development
41 in females and Perry (1999) is limited to intellectual and ethical personal development in
42 males.
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53 There is an overall consistent pattern in all constructive –developmental theories for the
54 journey of personal development, with movement from one phase to another (Evans et al
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1
2
3 2009). However, there are important individual differences in the journey, both in the pace of
4
5 sequentially moving from one phase to the next phase and also in the extent of movement in
6
7 each of the main developmental dimensions (Evans et al 2009). An appreciation of these
8
9 findings is also important for understanding the self-authorship of a person, with the
10
11 recognition that self-authorship is an individual and personalised process (Magolda 2008).
12
13

14 15 16 17 18 *Phases of self-authorship*

19
20 Kegan (1995) first described the concept of self-authorship as a phase in a person's journey
21
22 of development. His research suggested that all persons progressed through a number of
23
24 phases in their lives during which they made meaning of their experiences. In the earlier
25
26 phases of infancy and childhood, he noted that the person had impulsive feelings and
27
28 classified objects, people and ideas with specific characteristics. For example, the child
29
30 quickly made a simple decision for him or herself on whether they liked or disliked a person,
31
32 with no compromise. By the time the person had reached early teens he or she had a
33
34 "socialised" mind, with their knowledge, beliefs, values and behaviours internalised from
35
36 others around them, including parents, school teachers and his/her peer group. The person
37
38 had a mind that had been constructed through the influence of others, and often blamed other
39
40 persons for his/her own behaviour. As the person approached late teens and early twenties,
41
42 he found that most persons had started to take personal responsibility for his/her own
43
44 decision-making and actions. These persons had constructed his/her own worldview, with
45
46 knowledge, beliefs and values that had been thought through and they were no longer reliant
47
48 on a previously internalised worldview. This phase was called self-authorship and is an
49
50 essential process in the developmental journey to become a self-transforming person. In this
51
52 final phase, which may not be achieved before the age of thirty or forty, the person has a clear
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3 appreciation of how he/she, as an individual, are an integral component of a much wider
4
5 world.
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8 Magolda (2008) repeatedly interviewed an initial sample of 101 college students. This
9
10 longitudinal study followed the students from their early twenties to their late thirties, with 30
11
12 participants still being interviewed each year after 25 years in the study. Using Kegan's
13
14 research findings as a framework to analyse the intellectual growth and personal
15
16 development of the students, she also found a similar journey in over 1000 interviews for a
17
18 person's growth and development through several phases. Students moved away from
19
20 initially relying on a worldview (which represents the entire way of looking at his/her world
21
22 and encompasses his/her knowledge, beliefs and values) that had been received from parent
23
24 figures, from both inside and outside his/her family, to a new worldview that he/she had
25
26 reflectively deliberated about and that subsequently influenced his/her judgments, decision
27
28 making and subsequent actions – he/she had reflectively self-authored their own lives. The
29
30 stimulus to the self-authoring process appeared to be several episodes, which she called
31
32 “crossroads”, that stimulated reflection on his/her current worldview to create an alternative
33
34 worldview that informed how they would live in the future. These “crossroad” opportunities
35
36 were moments of surprise to the student, such as when faced with a person from a different
37
38 cultural background or when they read about the difficulties in applying research findings to
39
40 practice. These findings have subsequently been replicated in a large cross-sectional study of
41
42 315 college students (Barber et al., 2013).
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52 *Dimensions of self-authorship*

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55 The extensive research by Magolda (2008; 2013) identified that self-authorship was in three
56
57 inter-related dimensions: cognitive, intrapersonal and interpersonal (see Figure 1).
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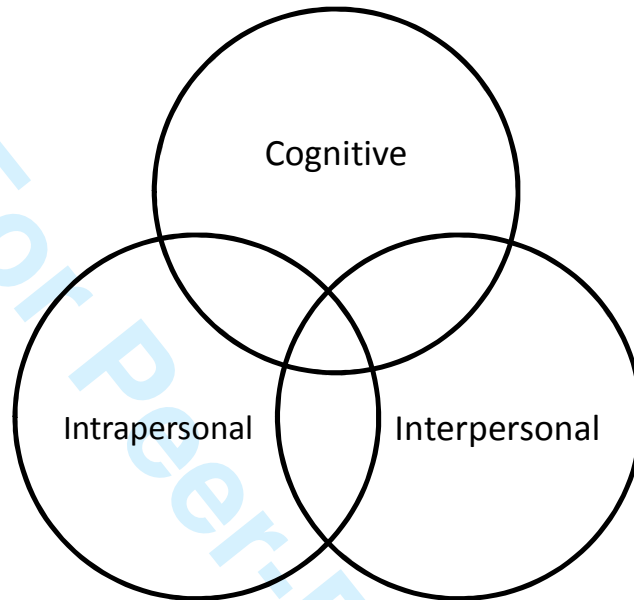


Figure1:

The three dimensions of self-authorship

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6 Magolda (2009 a) noted that a person was often at a different stage of the development of
7
8 his/her self-authorship across each dimension at a particular moment in time. However, there
9
10 was an overall pattern of distinct phases in a person's developmental journey to self-
11
12 authorship.
13

14
15
16
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18
19 *(a) The cognitive dimension*
20

21
22 This dimension is about "how do I know" and its focus on the nature, limits and certainty of
23
24 knowledge. The person begins to shift from regarding knowledge (and its interpretation
25
26 through beliefs and values) as being absolute to a more mature contested state, with different
27
28 shades of grey. For example, a person begins to use critical thinking when reading or
29
30 interacting with others and he/she begins to appreciate that often there are several
31
32 perspectives to any situation. In summary, the self-authored person has achieved both
33
34 intellectual growth and a degree of personal development to inform his/her worldview,
35
36 thereby taking responsibility for making sense of competing perspectives and the
37
38 subsequent decision-making and action.
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46 *(b) The intra-personal dimension*
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49 This dimension considers the question "who am I", with a focus on the person's sense of who
50
51 he/she is in the world and what he/she believes and values. The person begins to develop a
52
53 clear self-identity and internalised belief and value system that is not dependent on the views
54
55 of others. For example, a person begins to understand his/herself and how his/her personal
56
57 worldview influences his/her behaviours. He/she begins to internally challenge his/her
58
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1
2
3 meaning –making about how they live in the world and his /her decisions about how he/she
4
5 wishes to live his/her lives. Important aspects of this dimension include the development of
6
7 both his/her personal identity, including cultural affiliation and sexual orientation, and his/her
8
9 future professional identity. In summary, the self-authored person has an integrated identity
10
11 that guides his/her actions.
12

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18 *(c) The inter-personal dimension*
19

20
21 This dimension is concerned with “how do I want to construct relationships with others”,
22
23 with a focus on the mutual aspects of relationships and an appreciation of diversity. For
24
25 example, a person begins to appreciate the diversity of attributes that are possessed by
26
27 individuals and that tolerance is essential for effective relationships. In summary, the self-
28
29 authored person has mature relationships, with acceptance and tolerance of diversity in
30
31 others.
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38 *Features of self-authorship across gender and cultures*
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40
41 The research by Kegan and Magolda was undertaken in liberal arts (humanities) colleges in
42
43 the United States but there have been an increasing number of studies in other contexts. For
44
45 example, research has included female students in Korea (Lee et al., 2006), students in Japan
46
47 (Hofer 2010), female students of child-care in Australia (Brownlee et al., 2010) and students
48
49 with different cultural backgrounds from Israel (Weinstock 2010).
50

51
52
53 These studies of student populations, with a mix of genders and cultures, across a range of
54
55 disciplines from around the world, produce some fundamentally similar findings in relation to
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1
2
3 the presence of the three dimensions of self-authorship (cognitive, intrapersonal and
4
5 interpersonal) and the sequence of developmental phases.
6
7

8 Differences have been identified between Western individualistic and Eastern collective
9
10 beliefs about knowledge and interpersonal relationships (Magolda et al., 2010). It is also
11
12 interesting to note that college students classified as “high risk”, such as those from
13
14 minority ethnic backgrounds, were found on entering college to be already in an advanced
15
16 phase of self-authorship (Pizzalato 2003). However, following admission their meaning –
17
18 making was challenged and they reconsidered their previously constructed internal
19
20 foundations to meet the external expectations of the college, such as not voicing their critical
21
22 views about the relevance of topics being taught. The findings from these two studies suggest
23
24 that the context within which students live and study is a very important factor in the
25
26 development of self-authorship.
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30
31 Magolda (2009 a) highlights the essential notion that the development of self-authorship, in
32
33 the extent across the various dimensions and phases, is unique to a person at any given point
34
35 in time. She also emphasises that a person may not achieve optimal self-authorship until
36
37 he/she are aged between thirty and forty. The influences on this self-authorship process are
38
39 complex and include individual factors, such as personality, culture and gender, along with
40
41 contextual factors, such as the range of different crossroad experiences and the opportunity
42
43 to have supported reflection on these experiences (Magolda 2009a).
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50 51 **Application of self-authorship theory in education**

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53 A theoretically-derived perspective for the use of self-authorship in education has been
54
55 developed from the findings of both the experiences of the participants in the previously
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1
2
3 described longitudinal study (Magolda 2004), along with an observational research study of
4
5 the development of self-authorship in students attending several college classrooms across a
6
7 range of different disciplines, including science and humanities (Magolda 1999).
8
9

10
11 Magolda (2009 b) highlights the need for a holistic educational theory that can encompass
12
13 and integrate intellectual growth and personal development, recognise the importance of
14
15 individual and social aspects of learning and has a focus on facilitating meaning- making
16
17 through challenging the current worldview of learners. She also considers that many
18
19 educational theories are limited in the practical application of theory to practice, whereas self-
20
21 authorship theory has the strength of being grounded in observations from educational
22
23 practice.
24
25

26
27 The main educational application of self-authorship theory is in the learning partnerships
28
29 model (LPM) for higher education (Magolda & King 2004). This has been used to provide
30
31 an overall curriculum philosophy, which directs the content and method of education
32
33 (Bekken & Marie 2007), and to offer a framework for faculty development (Wildman 2004).
34
35 Self-authorship theory has also been used as a practical approach for student support in
36
37 educational contexts (Evans et al., 2009). There is considerable overlap between these two
38
39 applications and the differences are related to the intended use since they both have similar
40
41 fundamental principles. The LPM approach will be the focus for this Guide and readers
42
43 interested in the specific features of the student support use of self-authorship are
44
45 recommended to consult the Developmental Student Support in Undergraduate Medical
46
47 Education: AMEE Guide No. 92 (Sandars et al., 2014).
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3 *Key features of the learning partnerships model (LPM)*
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5
6 The learning partnerships model (LPM) considers that there are three essential, and
7
8 interrelated, aspects of any educational experience that are required for the constructive
9
10 component of the constructive –developmental approach (Magolda & King 2004):
11

12
13 (a) Knowledge is complex: learners have to experience situations in which ways of
14
15 knowing, or knowledge, have multiple interpretations which depend not only on
16
17 information and facts, but also on the beliefs and values that influence this
18
19 interpretation by his/her self and others. These situations require exposure to real-life
20
21 challenges, either outside the classroom, such as an attachment to a hostel for
22
23 homeless persons, or in the classroom, such as when there are markedly different
24
25 opinions of the causation of an event. This experience helps develop a person's
26
27 cognitive dimension of self-authorship but also his/her intrapersonal and
28
29 interpersonal dimensions that are influenced by his/her cognitive dimension.
30
31
32

33
34 (b) The self is central to knowledge construction: learners have to take on
35
36 responsibility for learning, with a willingness to challenge his/her existing
37
38 worldview, including his/her beliefs about both themselves and others. This process
39
40 develops a person's identity and his/her intrapersonal dimension of self –authorship,
41
42 but also elements of his/her cognitive and interpersonal dimensions that are
43
44 influenced by his/her identity.
45
46
47

48
49 (c) Authority and expertise is shared in knowledge construction through interaction
50
51 with peers: learners need to appreciate that effective learning is a mutual process, with
52
53 sharing and tolerance of different perspectives This process primarily develops a
54
55 person's interpersonal dimension of self –authorship but also his/her cognitive and
56
57 intrapersonal dimensions that are influenced by his/her interpersonal relationships.
58
59
60

1
2
3 The two main conditions inherent in learning partnerships model (LPM) are support and
4
5 challenge. These conditions require learners to be challenged within a supportive
6
7 relationship and environment, thereby facilitating the learner to progress across the
8
9 developmental phases of self-authorship. The supportive conditions can be provided by
10
11 valuing the learner's perspectives and world-views through an empathic understanding of the
12
13 learner and the challenge can be created by offering crossroad opportunities, either through
14
15 situational experiences and/or by skilful reflective questioning. Although both support and
16
17 challenge are essential for self-authorship, the empathic support aspect is the most important
18
19 since if this is lacking the learner can retreat back to a previous phase, relying for protection
20
21 on the certainty of his/her beliefs that have been internalised from parent figures (Magolda &
22
23 King 2004).
24
25
26
27
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29
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31 *Similarities of the LPM to other educational theories*

32
33
34 An exhaustive list of educational theories and their similarities to LPM will not be presented
35
36 but a selected number of theories will be discussed to illustrate some of the major
37
38 similarities.
39
40

41
42 The LPM is grounded in the principles of a constructive-developmental perspective, with
43
44 strong roots in Piaget's theory of cognitive development, in which meaning-making occurs
45
46 through a process of accommodation, by which learners substantially revise aspects of
47
48 his/her pre-existing mental worldview (schemas) in order to fit in the new information
49
50 obtained from various experiences (Magolda 2009 b). These substantial shifts in
51
52 understanding and meaning-making can be considered as transformational learning
53
54 (Mezirow 1997), and are stimulated by "crossroad" experiences, as described in self-
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56
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1
2
3 authorship theory (Magolda 2008), and similarly described in transformative learning theory
4
5 as “disorientating dilemmas” (Mezirow 1997).
6
7

8
9 There are also many similarities with the educational philosophy, or normative theory, of
10 Dewey (1933). For Dewey, education is a collective, and guided or facilitated, process of
11 meaning- making that requires critical reflection on the complex daily problems that are
12 faced by all persons. This process should be an integration of both knowledge and personal
13 beliefs and values. Both LPM and Dewey highlight the importance of learning that is
14 situated in real-life contexts and is also collaborative; these are essential aspects of the
15 communities of practice theory of learning (Wenger 1998).
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17
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24
25 Transactional analysis, with its roots in psychoanalytic theory, has been used to inform
26 education practices (Emmert & Newton 2004). An important aspect of transactional
27 analysis is the recognition by the learner of the influence of “parents” (representing both
28 actual parents but also influential parent figures from the person’s childhood, such as school
29 teachers) on his/her worldview. A key feature of education from a transactional analysis
30 perspective is to facilitate intellectual growth and personal development through the
31 movement from reliance on the worldview of “parents” to developing his/her own
32 worldview (James 1985).
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46 **Practical applications of the learning partnerships model (LPM)**

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48
49 The LPM considers that the educator has a critical support and challenging role in
50 facilitating both self-authorship and learning. This role of the educator includes drawing
51 learners’ attention to the complexity of work and life decisions in order to discourage
52 simplistic solutions, to encourage learners to develop his/her personal authority and control
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3 over his /her life by listening to his/her own inner voice in determining how to live his/her
4
5 life, and to share expertise, and work interdependently with others, to solve mutual problems
6
7 (Magolda 2004). These interventions are designed to facilitate the essential constructive
8
9 aspect of the constructivist-developmental approach that is at the heart of the LPM. An
10
11 important aspect of the LPM is the facilitation of the learner's ability to integrate knowledge,
12
13 beliefs and values through the connection and synthesis of information from across a range
14
15 of different contexts and perspectives so that the new knowledge, beliefs and values can be
16
17 applied to a variety of future situations (Barber 2014).
18
19

20
21 The other essential developmental aspect of the LPM is the recognition of the individual
22
23 learner's phase of meaning- making in his/her personal journey of self-authorship. This
24
25 recognition allows appropriate developmental and learning goals to be considered, with
26
27 appropriate educational interventions to facilitate the achievement of these goals by the
28
29 learner. An important skill for the educator is to achieve a balance between providing
30
31 individual personalised interventions and collective small-group interventions (Magolda
32
33 2004).
34
35

36 37 38 *Overall approach to the use of the LPM*

39
40 Taylor and Haynes (2008) provide a useful three-tiered approach to guide the educator in
41
42 using the LPM based on self-authorship theory, with separate developmental and learning
43
44 goals for each tier:
45
46

47 48 *(a) Tier 1*

49
50 This is designed for learners who tend to view knowledge, beliefs and values as absolute and
51
52 have a limited vision of themselves as authors of new knowledge, beliefs and values. These
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1
2
3 learners rely uncritically on external authorities, such as educators, for guidance and
4
5 approval.
6
7

8
9 Developmental goals for this tier include learning to understand how authorities, such as
10
11 educators and experts, construct knowledge and create beliefs and values that inform his/her
12
13 decision making in response to problems that they face. Learners begin to see the need to
14
15 create his/her own knowledge, beliefs and values for making effective decisions, and become
16
17 increasingly aware of the limitations of the views of others in helping to make decisions.
18
19

20
21 Learning goals in this tier centre around identifying multiple perspectives, encountering
22
23 these through interaction with others. Educators can provide multiple perspectives and to
24
25 provide crossroad opportunities to facilitate inquiry and skills in discovery, both for the
26
27 learner as an individual but also as a member of a wider group. This requires learners to be
28
29 presented with problems that are complex, with no easy answers, such as those that are faced
30
31 in day to day life and work. An important aspect of the educator is to become a partner in
32
33 this process, acting as a role model that critically reflects on the situation, thereby
34
35 acknowledging self-doubt in his/her own current knowledge and to question his/her own
36
37 knowledge, beliefs and values. These processes should build on the previous experiences of
38
39 the learners and occur within a safe learning environment where he/she can also feel
40
41 comfortable in acknowledging his/her own self-doubts and to question his/her previous
42
43 world views.
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51 *b) Tier 2*
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54 At this tier, learners have already developed an awareness of the uncertainty of his/her
55
56 own existing worldview and the need to develop their own worldview to effectively make
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1
2
3 decisions in a complex world. This is an important, though potentially difficult time, for
4
5 learners since it is a transition in which he/she have to face the uncertainty of letting go of a
6
7 more certain past, with its certainty, and look to a future, with all the uncertainty it could
8
9 entail .
10

11
12 Developmental goals for this tier include beginning to make choices and decisions that are
13
14 based on his/her critical inquiry and evaluation of the multiple perspectives of a problem but
15
16 also his/her own knowledge, beliefs and values. This is an important meaning-making
17
18 process that helps the learner towards becoming self-authored. An important aspect of
19
20 this process is role modelling by the educator to show how multiple perspectives are
21
22 considered and critically evaluated, but being a member of a peer group also provides an
23
24 essential opportunity to share different perspectives and insights.
25
26
27

28
29 Learning goals in this tier include identifying, analysing and comparing the competing
30
31 frameworks that the problem presents to the learner. This can be facilitated by the educator
32
33 but also through being a member of a peer group. Facilitation at this stage should challenge
34
35 learners to see the limitations and benefits of different perspectives (from across both
36
37 cognitive, intrapersonal and interpersonal dimensions) and to discover solutions that lead to
38
39 independent decisions. An important educational aspect is to try and make connections
40
41 through enquiry across the various learning experiences, both past and present, to provide in
42
43 –depth meaning- making for the learner. It is essential for educators to recognise the
44
45 transitional nature of the learner in this tier, and that the learner will be faced with doubts and
46
47 uncertainties. The educator can appropriately support learners by not only helping the learner
48
49 to accept his/her anxieties but also to encourage the learner to trust his/her own inner voices,
50
51 through which he/she express a personal worldview that is composed of his/her newly
52
53 constructed knowledge, beliefs and values .
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9 (c) Tier 3

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11 This is designed for learners who are developing self-authored meaning-making to create
12 his/her own internal belief and value systems and also interdependent relations with others.
13
14 These learners have already come to the conclusion that knowledge is complex and
15
16 contextual, as well as starting to establish his/her own beliefs and values. These learners may
17
18 still have some of the anxieties associated with the transition in tier 2 to becoming self-
19
20 authored and this should be recognised by the educator.
21
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26 Development goals for this tier include the learners' consistent reliance on his/her own newly
27
28 constructed internal belief and value systems and the integration of the various aspects of
29
30 his/her identities to develop confidence in his/her own worth and ability, including self-
31
32 esteem.
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34

35
36 Learning goals in this tier have a focus on consolidating the learners' process of evaluating
37
38 and integrating diverse perspectives across multiple different contexts, and also aligning his
39
40 /her actions with their own beliefs and values. Educators can continue to challenge and
41
42 support the learner but it is essential to also create opportunities for learners to learn from,
43
44 and teach, other members of his/her peer group, thereby engaging in constructive
45
46 discussions around difference and multiple perspectives. This critical thinking helps
47
48 learners to refine his/her knowledge, beliefs and values, as well as strengthening his/her
49
50 capacity to sustain interdependent relationships with those with diverse worldviews.
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3 The importance of a tiered approach for educators who wish to use a self-authorship approach
4 is that it enables the identification of the phase of self-authorship development of an
5 individual learner so that appropriate learning goals and methods can be implemented. This
6 approach is useful for one-to-one teaching but can also be applied to larger groups of
7 learners. Although there is variation of the phase of self-authorship across the individuals in
8 a group it is likely that there will be a predominant phase of self-authorship development
9 across the whole group since the learners are usually of a similar age (Magolda & King
10 2004).

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22 *Illustrative examples of the application of LPM*

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24 Two illustrative examples are provided to show the application of LPM in college students.
25 The first example is teaching biological evolution (Nelson 2012), with a focus on
26 instructional methods, and the second example is teaching earth sustainability (Bekken &
27 Marie 2007), with a focus on aligning developmental and learning objectives, especially
28 using the tiered approach.
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(a) Teaching biological evolution (Nelson 2012)

One of the major obstacles to the teaching of biological evolution is the conceptual complexity that is experienced by learners and the multiple perspectives. Self-authorship on a first-year college course was facilitated by two interventions. In the first intervention, students were provided with structured worksheets that presented a complex problem in biological evolution and the students were asked to propose an answer that integrated multiple perspectives, including researching several theories of biological evolution. The worksheets were subsequently discussed in small groups that were facilitated by a tutor. The second intervention was a tutor facilitated group discussion in which each student was asked

1
2
3 to take the role of person that held a particular perspective on biological evolution. The
4
5 author noted the particular importance of support from the educator and the creation of
6
7 sufficient challenge in the instructional tasks to create crossroad experiences for the students.
8
9 After the teaching sessions, he noted that students had not only increased their knowledge but
10
11 had moved from an absolutist to a relativist position regarding evolution. No further details
12
13 were provided.
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20 *(b) Teaching earth sustainability (Bekken & Marie 2007)*
21

22 The course tutors of a series of workshops on earth sustainability recognised that there were
23
24 multiple stakeholder perspectives about the “messy” complex problems being encountered
25
26 about earth sustainability, such as carbon emissions. The tutors wanted to create a course that
27
28 not only addressed content and technical skills for intellectual growth but also to support the
29
30 learners’ developmental journey towards self-authorship. Over several semesters, that were
31
32 spread over two years, students attended tutor facilitated small groups and were presented
33
34 with a variety of current dilemmas.
35
36

37 An important aspect of this study was that there was a clearly defined curriculum with
38
39 specific developmental objectives, within the cognitive, intrapersonal and interpersonal
40
41 domains of self-authorship, combined with specific learning objectives. The objectives for
42
43 each workshop were also at different tiers over the two years to develop both higher order
44
45 learning but also to facilitate self-authorship, see Figure 2.
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Domain	First year seminar	Second year seminar
Cognitive	To access information sources and summarise retrieved articles in response to prompts provided in study guides prior to the workshop	To use several information sources and compare a variety of articles using a self-directed inquiry process
Intrapersonal	To become aware of own beliefs and viewpoints	To reflect on personal beliefs and viewpoints to evaluate their origin
Interpersonal	To actively listen and begin to question and discuss topics in group, thereby sharing different perspectives	To engage in constructive discussion with group members that values different viewpoints of individual group members

Figure 2:

Examples of combined developmental and learning objectives for a first and second year seminar

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5 The developmental and learning objectives were closely aligned to learning tasks, including
6 pre-group work, reflective journals that required structured responses to the developmental
7 and learning objectives and also regular assignments. These materials we used in the
8 evaluation to identify the extent to which students had become self-authored.
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14 The evaluation noted that students increased his/her ability to recognise assumptions and
15 arguments, increased sensitivity to ethical issues, connection and integration of the course
16 content into his/her personal life and a tolerance for ambiguity. Overall, the authors
17 considered that fifteen of the twenty students had become fully self-authored during his/her
18 participation in the course.
19

20
21 A further review of the course after three further cohorts (130 students) was compared with
22 a sample of students that had not participated in the course and several important changes in
23 both development and learning outcomes were noted after two years (Bekken 2012). For
24 development outcomes, participating students held more sophisticated conceptions of the
25 nature of knowledge, with greater tolerance of the uncertainty of unstructured knowledge.
26
27 These students were also able to use more disciplinary views in making decisions, respecting
28 the diverse viewpoints of others. For learning outcomes, participating students held more
29 sophisticated beliefs about knowledge and learning, less likely to believe that “learning is
30 quick”, had increased motivation to learn and were also more self-regulated in their approach
31 to learning.
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48 These illustrative examples provide a useful and interesting insight into the variety of
49 educational interventions that can be potentially used within a wider LPM to impact on both
50 intellectual growth and personal development (self-authorship) and learning outcomes.
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Implications of self-authorship for curriculum transformation in medical education

The curriculum can be simply considered to have three essential components (the aims, the process and the assessments) and any curriculum transformation requires alignment across all of these components (Kelly 2009). We will illustrate how self-authorship has the potential to inform the response to the call for transformation in medical education by applying these curriculum components to the only study that we have identified with an explicit statement about self-authorship (White et al 2009).

The aims

The self-authorship dimensions are core to many of the expected outcomes for medical education. Examples of different outcomes linked to the self-authorship dimensions include:

The cognitive (knowledge) dimension: critical appraisal of new information and the limitations of scientific knowledge and evidence –based medicine; appreciation of the links between the “certainty” of the knowledge of basic science with the “uncertainty” of the knowledge required for clinical work.

The intrapersonal (identity) dimension: personal identity formation, with acceptance of his/her own attributes and perceived expected attributes of their profession, with increased resilience and taking of self-responsibility for his/her own learning; professional identity formation, and a realistic appraisal of the student’s role as a future clinician.

The interpersonal (relationship) dimension: increasing appreciation of different beliefs, values and attributes between individuals and groups, with greater awareness of cultural competence, team working and social accountability.

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2
3 White et al.(2009) established a prolonged Family Centred Experience (FCE) with the
4
5 explicit aim of helping first and second year students “understand and achieve self-
6
7 authorship goals and to help them understand the value of humanistic, patient –centred care”
8
9
10 p598 (White et al., 2009).

11 12 13 14 15 16 *The process*

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18 The key principles of the LPM are that learners have to experience the complexity of the
19
20 “real world”, take responsibility for his/her own learning and share his/her learning and
21
22 journey of intellectual growth and personal development. These principles can be used to
23
24 develop an educational intervention in medical education. For example, students in the FCE
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26 were required to experience the complexity in an authentic situation of a patient with chronic
27
28 or serious illness, visiting them both at home and on at least one clinic visit. In addition,
29
30 students were expected to read around the topic and to reflect on his/her experiences,
31
32 including his/her own personal illnesses. The students shared his/her experiences and
33
34 reflections, both with another student that accompanied them on the visits but also in small
35
36 groups that were facilitated by experienced tutors. Formative assessment about the student’s
37
38 personal self-authorship journey was provided through a meeting with a tutor, with a
39
40 discussion of the themes in the reflections and feedback of his/her group contributions. An
41
42 important aspect of the FCE was the expectation that “students take active responsibility for
43
44 their own learning and that of their peers, to bring and share relevant personal experiences to
45
46 the discussion and demonstrate leadership, reflection, critical thinking, and self-assessment”
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50 p598 (White et al., 2009).

Assessment

Although the evaluation of the study was primarily concerned about a qualitative exploration of the conflict between the formal and informal curriculum of the FCE, the findings suggested that the experiences of the students, including the challenge to his /her personal belief and value system by seeing a variety of different behaviours in the healthcare professionals that they had encountered, provided numerous crossroad opportunities for his/her journey of self-authorship and that students also achieved the intended learning goal of understanding person-centred care. Although the specific dimensions of self-authorship were not identified, one of the identified themes was transformation in values, with a recognition by some of the students that the constraints of real-life practice would require a change in the type and duration of their interactions with patients. No longer were students continuing to hold idealistic beliefs about consultations with patients and their families.

The essential role of the educator for developing self-authorship in medical education

We consider that the educator has an essential role in the application of constructive-developmental pedagogy in medical education, both for achieving learning outcomes and for promoting self-authorship. Slabbert, et al (2011) highlight the importance of the educator to set the appropriate task and conditions for learning, to allow the learner to reflect on both the content and process of his/her learning, to give feedback with the intention of promoting learning and development, and also to provide consolidation of learning for transfer to new situations (which can be provided by summarising what has been learned and how the new learning can be used in the future). Underpinning all of these actions by the educator is the core belief that education requires a supportive and non-judgmental approach that facilitates the learner to make choices (Roger 1962). This belief does not mean that the educator does

1
2
3 not challenge or question the learner to understand why he or she are making their choices,
4
5 but it does mean that this process is performed in a manner that respects the current
6
7 worldviews of the learner . These skills are identical to those required for effective person-
8
9 centred consultations in clinical practice (Nelson-Jones 2013).
10

11
12 An important aspect of the educator is to progressively “let go”, enabling learners to become
13
14 self-directed in his/her learning and to value his/her own voice (Magolda 2004). The
15
16 educator will need to be aware of the tier of self-authorship and make appropriate
17
18 adjustments to their approach (Taylor & Haynes 2008).
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25 *Setting appropriate tasks*

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27
28 Critical pivotal points in the journey of learning and self-authorship are the “crossroad”
29
30 experiences (Magolda 2008) or “disorientating dilemmas” (Mezirow 1997). A longitudinal
31
32 experience over a prolonged period of time, such as ten sessions over a twelve month
33
34 attachment to primary care, has several advantages. Learners have an opportunity to not only
35
36 have repeated experiences that can prompt reflection but also prolonged cycles of reflection,
37
38 with action-reflection-action, can be used to enable deeper understanding. The prolonged
39
40 contact with the same educator is also of benefit since trust is developed and this creates
41
42 unique opportunities for challenge and subsequent learning and intellectual growth and
43
44 personal development.
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49 Longitudinal clinical clerkships appear to have enormous potential in medical education.
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51 As the name implies, students have a more immersive contact with both patients and the
52
53 communities within which the patients are situated over a prolonged period of time but they
54
55 also have the opportunity to have a prolonged contact with an educator (Ogur et al., 2007).
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3 The longitudinal aspect has the potential for a student to not only have numerous crossroad
4 events but also he/she has the unique opportunity to repeat the cycles of meaning-making,
5 thereby enhancing his/her intellectual growth and personal development. Provisional data
6 appears to support this exciting prospect, and although there has been no specific evaluation
7 of self-authorship, changes have been found in self-awareness and understanding of
8 relationships with others (Ogur & Hirsh 2009).

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17 The use of reflective practice is almost ubiquitous in medical schools and these opportunities
18 can be enhanced by a specific focus on self-authorship, especially since the purpose of the
19 reflection is often unclear to both the students and the educators (Sandars 2009). Many
20 medical schools have implemented formal mentoring or appraisal systems and these also
21 offer ideal opportunities for the application of a self-authorship perspective (Frei &
22 Buddeberg-Fischer 2010; Murdoch-Eaton & Levene 2004).

23 24 25 26 27 28 29 30 31 32 33 34 *Questioning*

35
36
37 Neighbour (2005) highlights the importance of awareness-based learning, with maximum
38 potential for learning occurring when the learner is at a “crossroad” experience (Magolda
39 2008) or “disorientating dilemma” (Mezirow 1997). It is at these moments when there is a
40 realisation, conscious and/or unconscious, that his/her existing knowledge, beliefs and
41 values are challenged. Identification of these events require careful observation of
42 minimal cues. These cues can be verbal (the learner says that he/she are surprised), but often
43 these cues are more likely to be para-verbal (the speech of the learner becomes hesitant or
44 altered in tone) or non-verbal (the learner looks worried or is beginning to sweat). At these
45 moments, the learner is very receptive to awareness-raising questions that help the learner to
46 begin the process of meaning-making (Neighbour 2005).

1
2
3 Typical awareness -raising questions begin with open questions, such as “Why does that
4 surprise you?”. However, deeper questioning is required to identify the underlying reasons
5 for the surprise. An illustrative example to show the effect of awareness -raising questioning
6 on self-authorship in the inter-personal domain is presented:
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13 Question (by the educator): I wonder why seeing the nurse manage the problem
14 without consulting with a doctor surprised you?
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18 Answer (by the learner): I did not realise that nurses could take responsibility
19

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21 Question: That is interesting. I wonder where that idea of yours came from ?
22

23
24 Answer: I was told by my parents that only doctors are expected to manage patients
25 and that nurses only follow the orders of the doctor
26
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29 Question: What do you think about what your parents said?
30

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32 Answer: I am not sure from where they got their ideas
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35 Question: Do you think your views about nurses managing patients without
36 consulting doctors are now different after seeing this case
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40 Answer: Yes. I will think differently about the role of nurses in the future.
41
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43 This illustrative example shows several important features of the essential role of the
44 educator in the facilitation of self-authorship of the learner. The learner is led through a
45 series of awareness –raising questions by the educator to develop a reflective insight, and
46 meaning- making, into his/her worldview but also to the realisation that the current
47 worldview of the learner was being highly influenced by his/her parents. Once this is realised
48 by the learner, there is a change in his/her worldview and this is facilitated by non-directive
49 questions that are asked in an empathic manner to allow the learner to have the freedom to
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3 decide on his/her future action, in this case it is a change in worldview of his/her relationship
4 with nursing staff. An important aspect of the educator is that the reflective process includes
5 a discussion about how the new insights will be used, thereby promoting the learner to
6 consider change in his/her worldview. Further encounters with the same learner can lead to
7 further cycles of reflection following subsequent interactions by the learner with nurses.
8
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11 Educators can use a broad self-authorship framework (cognitive: “how certain is
12 knowledge?”, intrapersonal: “who am I?”, interpersonal: “how do I relate to others?”) to
13 structure discussions. The illustrative example of the use of awareness- raising questions is
14 within the interpersonal dimension but similar questions can help learners explore other self-
15 authorship dimensions.
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26 27 28 *Providing feedback*

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30 Effective feedback to change behaviour requires that the learner obtains information about
31 whether he/she has achieved an expected outcome but also about the processes that he/she is
32 using in his/her quest to achieve the outcome (Hattie & Timperley 2007). For a constructive-
33 developmental approach, that has a focus on the achievement of learning outcomes and
34 development of self-authorship, assessment is an essential role of the educator. We propose
35 that educators can use the tiered approach to guide their assessments and provision of
36 feedback to maximise effectiveness (Taylor & Haynes 2008).
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48 *Consolidation of learning*

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50 Linking current experiences to possible future situations is an important role for all educators,
51 enabling the learner to apply his/her new learning and insights. This can be easily achieved
52 by the educator asking learners further questions such as “How will you deal with a similar
53 situation in the future?”, allowing the opportunity for the learner to rehearse applying their
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3 new understanding to novel situations. For a constructive –developmental approach, the
4
5 focus of consolidation should be on both learning outcomes and self-authorship .
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10 11 12 **Measuring self-authorship**

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16 The measurement of self-authorship is a challenge for both educators, who want to evaluate
17
18 their interventions, and also researchers, who want to use measurements to investigate self-
19
20 authorship on specific processes of interest, such as a making career decisions (Magolda &
21
22 King 2012). The environment within which the learner is situated has an important impact
23
24 on how self-authorship is enacted when a person is faced with a particular situation. This
25
26 measurement dilemma is similar to that between trait and state measurements in personality
27
28 psychology , in which there is a contrast between pervasive characteristics (traits) and the
29
30 more relevant situational (state) presentation of behaviours (Steyer et al.,1999). This
31
32 distinction of trait and state is of importance when considering the measurement of self-
33
34 authorship, and the recommendation is that measurements of state, such as by interviews, are
35
36 the most relevant. This is reinforced by the finding that there is low correlation between self-
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38 authorship as measured by questionnaire when compared with by interview (Pizzolato 2007).
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45 The Self-Authorship Interview (Magolda 2001) is the recommended tool for measuring self-
46
47 authorship. This method uses a semi-structured interview that begins by asking participants
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49 to reflect on what he/she considers had been the most significant experience for them related
50
51 to a specific situation. These situations can be specific, such as entering college or making a
52
53 decision about a career, or more general, considering such situations over the previous three
54
55 or six months. An example of an initial open question is “ Have you had a situation over the
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3 last six months that has made you think differently? Please explain". The experience is then
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5 probed deeper, especially asking questions about "How did this situation make you feel? "
6
7 and "Why do you think you reacted that way?" These questions are designed to identify the
8
9 extent to which the participant is using knowledge, beliefs and values that he/she obtained
10
11 from parent figures. The responses are analysed within the three self-authorship domains
12
13 (cognitive, intrapersonal and interpersonal) and also the phase of self-authorship, using a tool
14
15 such as obtained from the tiers framework.
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23 **Using self-authorship theory as a perspective for educational research**

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27 Self-authorship can offer a useful perspective to inform research in education. Two
28
29 illustrative examples are provided, one to investigate career decision making (Creamer &
30
31 Laughlin 2005) and the other to evaluate resilience amongst high-risk students (Meszaros and
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33 Lane 2010).
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41 *Career decision making*

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43 Creamer and Laughlin (2005) used self-authorship to investigate decision-making about
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45 STEM (Science, Technology, Engineering and Mathematics) careers in female college
46
47 students. Using semi-structured interviews participants were asked four main questions:
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52 Question 1: Are there people who have had a significant influence on your career
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54 interests? Who are these people and how have they influenced you?

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56 Question 2: Why are these peoples' opinions important to you?
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3 Question 3: If these people had different views about what you should do for a career,
4
5 how would you handle these different viewpoints?
6

7 Question 4: Can you tell me about a situation where you had to make a difficult
8
9 decision? Would you tell me the story about what happened, including how you
10
11 handled the decision and how others helped you or hindered you in dealing with it?
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16 The authors found that most students were at the tier one phase of self-authorship where
17
18 he/she were reliant on knowledge, beliefs and values obtained from their parent figures and
19
20 previous peer group, with little evidence that they had questioned these influences on his/her
21
22 decision-making. It is interesting to note that most of the students had not experienced any
23
24 crossroad events to prompt their self-authorship and approach to decision-making.
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32 *Resilience of high-risk students*

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34 Meszaros and Lane (2010) evaluated the resilience of high-risk students entering college.
35
36 They postulated that self-authorship developed through crossroad experiences encountered in
37
38 college (such as low peer support and financial /social disadvantage) forcing a questioning of
39
40 current knowledge, beliefs and values, and thereby the creation of new knowledge, beliefs
41
42 and values could sustain their persistence through college. Using qualitative interviews, the
43
44 authors found that the students did indeed start to question their existing worldviews and
45
46 develop new knowledge, beliefs and values, and that these influenced how they made
47
48 decisions and acted to achieve their personal goals of continuing their studies in college. The
49
50 authors noted that this was the first study to show a possible association between self-
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52 authorship and academic resilience, and that this process was stimulated by their crossroad
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54 experiences.
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Implementing LPM in medical education curricula

Any curriculum reform requires medical educators to critically evaluate their current approaches and to carefully plan the implementation process (Steinert 2005). These considerations equally apply to the implementation of the LPM in the curriculum but there are some more specific attitudes to teaching and design features that need to be considered (King & Magolda 2004).

An essential aspect of the LPM is to make a commitment to change current teaching strategies to promote the goals of self-authorship and adopt an approach that is a partnership with learners. This ensures that the educator can openly reflect and discuss the dilemmas that they face across the three dimensions of self-authorship – cognitive, intrapersonal and interpersonal. This openness provides the essential role modelling that supports, but also challenges, the learners to become self-authored. The cognitive (knowledge) dimension can be developed by the educator acknowledging his/her uncertainty in dealing with a complex situation, recognising that there are conflicting view –points and no single “right answer”. The intrapersonal (identity) dimension can be developed by the educator being aware of and voicing the influence of his/her own different identities in reacting to the situation, such as not only being a doctor but also as a parent and member of society. The interpersonal (relationship) dimension can be developed by the educator showing respect to other colleagues and students, but also be stating how his/her behaviours are aligned to his/her beliefs and values.

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2
3 King and Magolda (2004) provide a useful framework for designing and implementing a
4
5 LPM curriculum, with several important steps:
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- 9
10 1. Select the context for implementing LPM - what is the most appropriate context to
11 develop self-authorship? For example, a longitudinal attachment to a hospice for
12 terminal care may provide many crossroad opportunities but there may be less in a
13 clinical attachment to cardiac surgery.
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20 2. Identify the learning goals in this context – these are the well-known knowledge, skills
21 and values
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- 27
28 3. Identify how the learning goals can reflect the goals of self-authorship - such as,
29 comparing different articles to highlight different viewpoints (cognitive dimension),
30 reflection on how an experience challenges the student’s beliefs and values
31 (intrapersonal) and the use a group-based project (interpersonal)
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- 38
39 4. Consider the phase of self-authorship of the students – in what tier (tier 1, 2 or 3) of
40 self-authorship are most students ? It is important to use methods that are appropriate
41 to the tier of self-authorship of the students.
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48 5. Consider how the three key principles of the LPM can be implemented (situate the
49 learning in authentic experiences by providing challenging complex problems,
50 validate the student as a person by showing respect for their beliefs and values, and
51 share the meaning -making process .
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Conclusion

Self-authorship theory has the potential to transform medical education curricula to effectively respond to the challenge of healthcare needs in the 21st century. A focus of self-authorship could help provide the essential intellectual growth and personal development that is required by future healthcare care professionals. Curriculum transformation can combine standard learning goals with self-authorship goals to achieve holistic education, and educators can provide a supportive, yet challenging, learning environment that is situated in the complexity of everyday clinical practice.

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