

# Promoting Self-Directed Learning in Family Medicine Residency Program in Saudi Arabia

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## Abstract

This paper examined fostering self-directed learning (SDL) in a residency program in family medicine in Saudi Arabia. It investigated the most effective ways to help in appropriate application of Self-directed learning in the residency program. Learning is maximized when it is self-directed so that residents study material that is most relevant to them. Medical residents learn best when they learn according to their perceived needs and competency gaps (learner-centered needs and gaps) which are more beneficial than teacher-centered ones. Residents engage in self-directed learning by first identifying a clinical problem, then pursuing the learning task, next acquiring the new knowledge or skill, and finally practicing the new knowledge or skill. In this paper, I have described a curricular intervention that employs several educational and administrative modalities to foster the self-direction in learning in the family medicine training program in Saudi Arabia.

**Key words:** medical education, family medicine, residency program

## Introduction

***“The only man who is educated is the man who has learned how to learn”*** Carl Rogers 1983

Although much of training in family practice addresses the formal medical education, it is increasingly believed that this is analogous to the tip of iceberg, as it has been recognized that active engagement in self-planned learning is more effective than passive learning. The acquisition of self-directed learning or Self Direction in Learning (SDL) skills and the ability to keep up to date with development in medicine are learning outcomes about which there is a general agreement (1).

The Saudi Commission for health specialties (SCHS) is the certifying and accrediting body for family physicians and family medicine residency programs in Saudi Arabia.

Saudi Board in family medicine consists of a four year residency training program. The graduated family physician is expected to be competent in managing diseases, up-to date in terms of patient care, and be responsible for his lifelong learning in a world of rapidly changing and expanding knowledge about treatment and investigations (2). In an attempt to meet these challenges, the scientific board of family medicine in SCHS has decided to reform the residency program from the traditional didactic teaching methods, to a competency-based training program (2). One of the attractions of competency-based CB curricula for reformers in medical education is the potential to foster self-directed learning as a lifelong habit. As has been mentioned in studies (3), during implementation of the CB program, it inconsistencies were found in the interpretation of self-directed learning and its importance in the residency program. Instead of developing self-direction, students became overly dependent on teacher instruction. The shift in the conceptualization of self-directed learning in CB Learning is obvious. The program is in need of developing a conceptual framework to guide teachers and students.

The primary purpose of the framework is to ensure that the goal of self-directed learning, and its relationship to the other goals of the residency program, are understood and interpreted consistently, and in a way that is most likely to achieve all goals effectively (4).

This paper explains the theories and principles on which the framework, of the family medicine residency program (FMRP) in Saudi Arabia is based.

#### **SDL theories and principles:**

Self-directed learning has been identified as an important ability for medical graduates (4).

Malcolm Knowles established a definition of SDL that guided work in this area. That definition is:

*A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying human and material resources, and evaluating learning outcomes.* (5).

This definition described learners as they move linearly through a series of steps to reach their learning goals.

Hammond and Collins developed in response to the growth of the concept of SDL a more structured definition:

*A process in which learners take the initiative, with the support and collaboration of others, for increasing self-and-social-awareness; critically analyzing and reflecting on the situations; diagnosing their learning needs with*

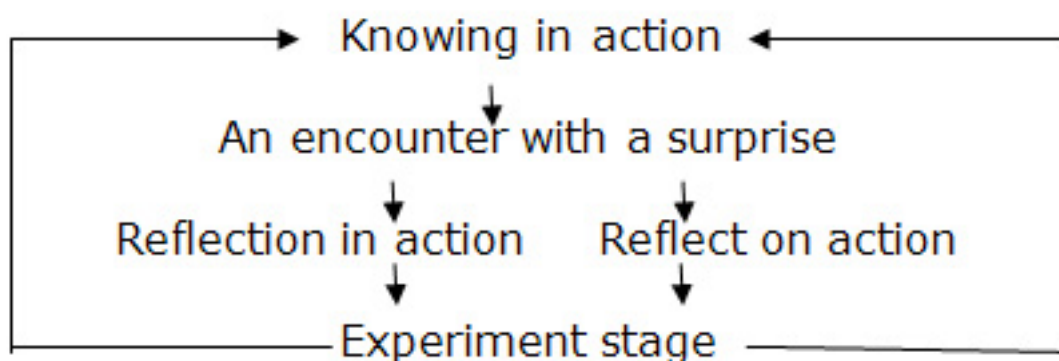
*specific reference to competencies they have helped identify; formulating socially and personally relevant learning goals, identifying human and material resources for learning; choosing and implementing appropriate learning strategies, and reflecting on and evaluating their learning.* (6).

This definition views the SDL process as more iterative, involving opportunities and interactions in the environment, the personality characteristics of learners, cognitive processes, the context of learning, and opportunities to validate and confirm SDL collaboratively. This definition forms the basis for more recent models in SDL e.g. the Personal Responsibility Orientation PRO by Hiemstra (7). In contrast to Self-directed learning; teacher-directed learning is learning where the teacher chooses what is to be learned, why it is to be learned, how it is to be learned, where, when, and at what level to be learned(4).

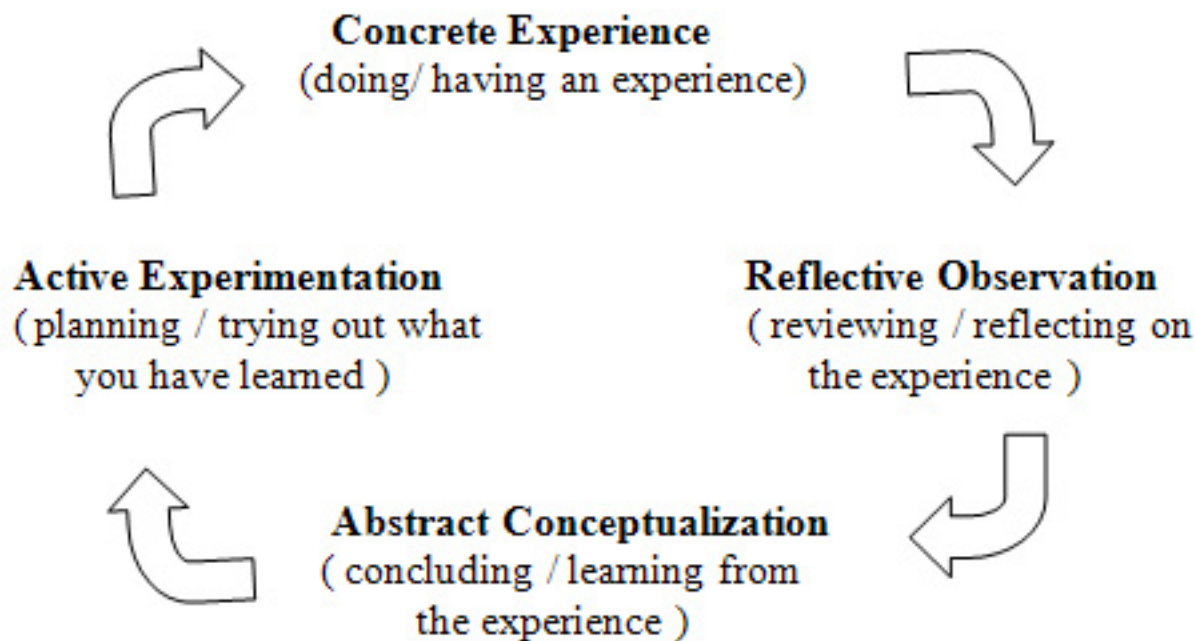
Among the bases for the self-directed learning theory is the ability to change in practice, which is known as reflective practice.

#### **Reflective practice and learning from experience:**

Patient centered education as well as learning from experience were the most important reasons as a basis for learning to change. Schon described a cycle of learning from experience that incorporates five stages (8, 9). An SDL approach is the most applicable when the learner already has some relevant knowledge and experience (4). While Kolb described a four stage learning process called the experiential learning theory (10).



**Schon** cycle of reflective practice-(Adapted from Prof Helen P Batty's lecture for Academic Fellowship Program in 2006).



### Kolb's learning cycle

#### The strengths of SDL:

The strengths of SDL in the field of medical education are obvious; the following are summarized from several sources:

- Student-centered learning; where the student might not only choose what to study, but how and why that topic might be an interesting one to study. (11).
- Active learning; as adult learner, the student will be active in the process of learning where he will adopt deep approach to learning (12).
- Meets the needs of individual learners; learners have different needs and learn in different ways. SDL is an approach which encourages the learner's independency in the process of learning.
- Motivate the learner; as the learner becomes more independent, responsibility for his learning will be more; this in turn would increase his interest in the program and his motivation as a learner.
- Self-assessment; the learner will be encouraged to do self-assessment. Self-assessment by the learner will help him to recognize the gap in his knowledge and skills which will determine his learning needs.
- Self-learning skills; obviously SDL encourage not only mastery of the content area being studied but also the development of generic skills of self-learning. Learning how to learn is an important skill in continuing professional development (13).
- Constructivist approach-Students activate prior knowledge and build on existing conceptual knowledge frameworks (14).
- Outcome-based education; SDL is supported by outcome-based education (curriculum) which is considered more effective than process model of curriculum.
- Cost effectiveness; SDL provides coherent and effective learning strategy despite increasing student numbers. Enable educators to supervise larger numbers of learners.

Repetition of frequently taught materials can be avoided. Sharing of resources between institutions will reduce the need to duplicate resources. Saving time spent in formal education will support the role of educator as a learning facilitator.

#### The goal of self-directed learning in the postgraduate program:

Lifelong learning is the goal of Self-directed learning which Milflin (15) defined as the development of physicians who:

- Are conscious of the need and accept responsibility for evaluation of practice in the light of changing understanding.
- Are able to identify deficiencies or gaps in their own knowledge, skills and attitudes (KSA).
- Are motivated to generate a learning program to address deficiencies and fill the gaps in KSA, including finding and using the best evidence.
- Have the skills to identify, access and use resources wisely and efficiently;
- Are able to evaluate learning efforts, including resources used, and the effects on practice, and
- Are committed to repeating the cycle with each patient and clinical situation.

These skills meet the expectations of the SCHS which are the skills needed for a competent family physician.

#### Promoting SDL in residency program:

SDL is a comprehensive learning experience that includes well-defined objectives, pre- and post tests, and resources for accomplishing the objectives.

A model was developed to be a framework for understanding self-direction in adult learning; it consists of Personal Responsibility as a Central Concept, Self-Directed

Learning as The Process Orientation, Learner Self-Direction as The Personal Orientation, and Self-Direction in Learning as The Vital Link. This model was developed by Ralph G. Brockett and Roger Hiemstra(16), which they refer to as the “Personal Responsibility Orientation” (PRO) model of self-direction in adult learning (illustrated below) which is designed to recognize both the differences and similarities between self-directed learning as an instructional method and learner self-direction as a personality characteristic (7). This model is very interesting as it highlights the learner importance in the process of SDL.”The SDL as a process focuses on characteristics of the teaching-learning transaction. Thus, when considering this aspect of self-direction, concern revolves around factors external to the individual. Needs assessment, evaluation, learning resources, facilitator roles and skills, and independent study are a few of the concepts that fall within the domain of the self-directed learning process. The learner self-direction, centers on a learner’s desire or preference for assuming responsibility for learning. This is the personality aspect discussed earlier. Thus, self-direction in learning refers to both the external characteristics of an instructional process and the internal characteristics of the learner, where the individual assumes primary responsibility for a learning experience” (7). External factors and internal factors (personality characteristics) lie under the umbrella of the concept of Self Direction in Learning. “The PRO model illustrates this distinction between external and internal

forces. At the same time it recognizes, through the notion of personal responsibility, that there is a strong connection between self-directed learning and learner self-direction” (7).

Incorporating adult learning principles into a predesigned educational package is challenging. The solution might be through this model (PRO model);

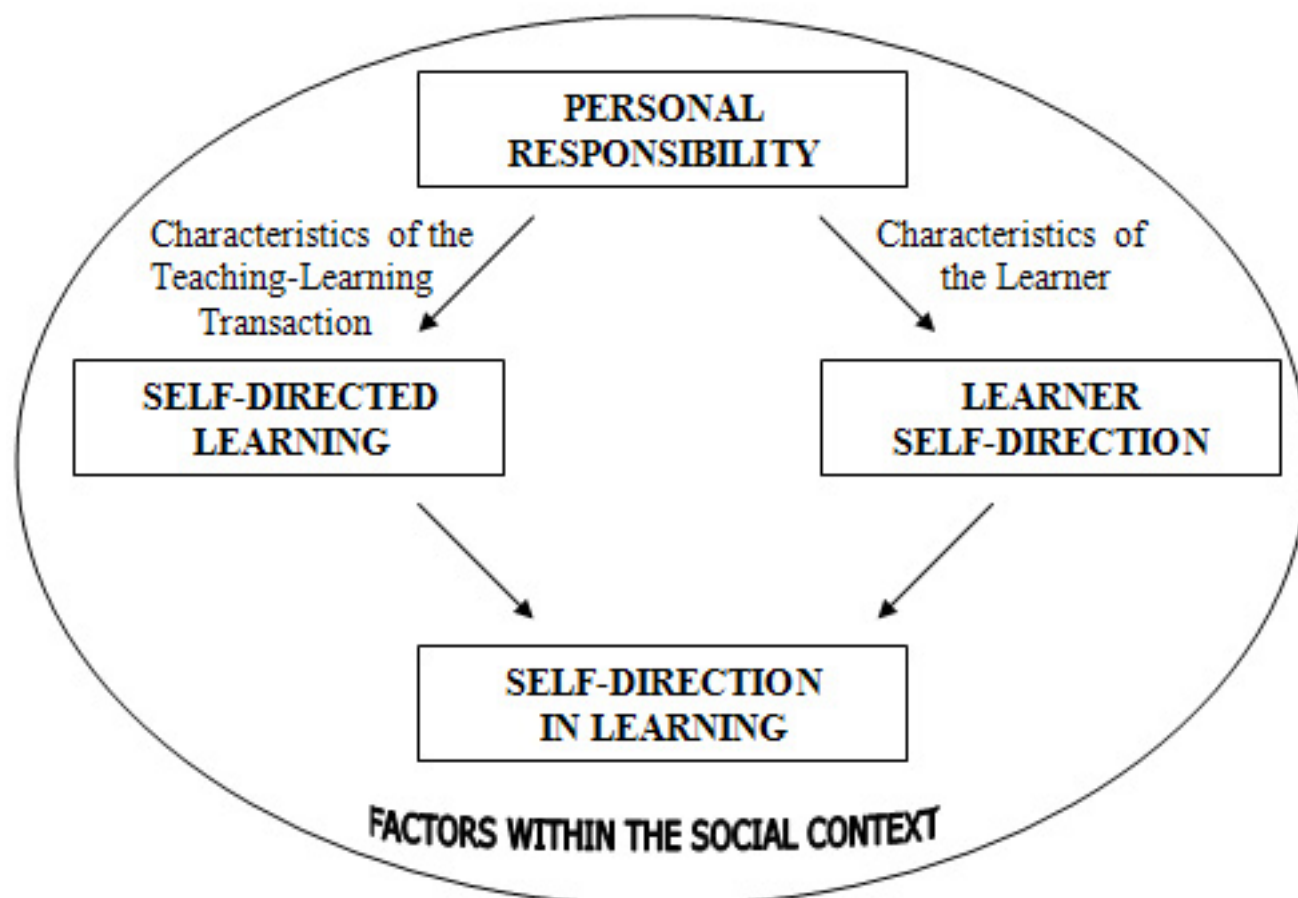
- I. learner self direction
- II. Self-directed learning as a process.

#### **Learner self direction:**

As mentioned above it deals with the personality characteristics of the learner that affect his survival in the self direction in learning.

Confidence is an essential component of SDL. Teaching that builds confidence, such as providing a supportive learning environment, supportive teacher attitude, acknowledgement of various learning styles and opportunities to practice new skills in a variety of settings will enhance the resident’s self-concept as a competent learner (17).

It is easiest when the learner already possesses skills that facilitate SDL such as self-assessment skills and library and informatics skills and other skills, which will be mentioned later.



The “Personal Responsibility Orientation” (PRO) Model. Reprinted with permission, Hiemstra, R. (7).

The SDL concept is somewhat not the usual strategy in the training programs in Saudi Arabia, where the learner has limited opportunities to assume control of the learning process. The learners in the training program need to develop fundamental skills. Learners in our program (FMRP) need to be trained in these skills:

- Self-assessment and identify their learning needs.
- Information searching for the health care literature and other databases
- Reading and critically appraising the medical literature
- Clinical decision-making skills

These skills are preferably to be posed in the early months of the program.

For the learners to develop these skills in SDL, they need an intensive facilitation and mentoring process by trained teachers. These processes should be applied to the new learners in the program (residents of first year R1).

Learners who are in advanced years might be enrolled with the new residents orientation to SDL skills if they are deficient in these skills, otherwise if they have gained these skills but are relatively inexperienced in SDL, they might benefit from orientation short courses.

An example is one-month rotation in which they learn informatics, critical appraisal, and clinical decision-making skills. Residents are required to apply these skills by critically assessing a clinical practice of their choice. At the end of the month, they formally present their findings to an invited audience. Time is provided within the curriculum for residents to work on their projects.

#### **SDL as a process:**

Discussion groups promote active participation in the learning process. Problem solving activities such as case studies help the learners to validate and use their experience as a learning source. Working in groups is also believed to decrease anxiety associated with lack of knowledge about the topic (4).

During the first year of implementation of the SDL in a PBL-curriculum, they found differences of opinion among staff and students, and between staff and students, about how to achieve the goal (1). When the concept of self-direction became counterproductive, dissonance about the concept caused difficulties in the implementation of the program. These difficulties might be dealt with by preparing both teachers and students to the process. Support to the student and teacher through attending workshops preparing them to identify their roles in the process of SDL would help to minimize the inconsistency among the educators and learners regarding the level of input they were willing to give in relation to SDL, which would be frustrating to both the student and the teacher (18).

Development of self-directed modules requires a substantial investment of time and work for the teachers. The immediacy of giving the learner an answer (pearls), spoon-feeding is

quick, but long term outcome is uncertain. Encouraging the learner to find the answers will have advantages of more student-teacher contact which will be reflected positively on their relationship and hopefully promote the process of SDL further in terms of implementation.

#### **Role of the Mentor:**

According to the Society of General Internal Medicine; mentoring is "a voluntary relationship in which the mentor is usually an experienced, highly regarded, empathetic individual, often working in the same organization, or field, as the mentee".

The Mentor role is significant as a contact to and guide for the learner to foster the SDL. Within the mentorship process, a mentor often assumes multiple roles (19). The mentor may be a role model, ensuring availability of resources, and to provide the Learner with constructive feedback. Mentor may be adviser, guide, listener, coach, friend, or facilitator. The role that best describes the mentor may be decided as a result of how well the mentor understands the total mentorship process. Clearly, the mentor role does not suit all people, including professors (20). This challenge needs us to train the mentors through frequent accredited workshops as part of continuing professional development CPD program for the teachers (trainers). These workshops must be SDL-based programs to help them learn and understand how to apply SDL.

#### **Tools and resources used in evaluation of SDL:**

Roger Hiemstra listed useful tools both for learner and educator to help in the self direction (see appendix B).

#### **Difficulties in achieving the goal:**

The ultimate result is the achievement of the goal of self-direction in learning, but some difficulties and barriers need to be addressed and dealt with.

An important thing is that adult learners do not always want to decide what to learn and how to learn in an unfamiliar environment. Self-directed learning may not be compatible with the learning styles of our learners; especially most of them lack the independent learning skills or have not been oriented on previous experience in undergraduate levels. The important result of the dissonance was that students become frustrated, struggling and many become dependent on direct educator guidance (asking educator to tell them what they would be assessed on).

As the learning is a change, and change may be threatening, the student and teacher need to feel secure and less threatened in the learning environment to the extent to dare to experience that which is new (20).

Lack of specific guidance and feedback to the student and teacher is one of the major reasons for the dissonance about the concept. This would lead to further frustration causing anxiety and distress for students. Feelings of frustration, anger and anxiety could affect motivation. The appropriate solution for this is through building a positive supportive student-facilitator relationship.

Monthly half-day tutorials will help the students to adopt the SDL in their learning where their concerns and worries may be addressed.

Follow up on what learner actually searched for, found, comprehended, and retained is often sporadic and unsystematic. This can be solved by educator assignments or learner's contract.

#### **Challenges in the application of SDL:**

The organizing committee for family medicine in the Saudi Commission of Health Specialties SCHS needs time and effort to recognize SDL model for learning and to adapt the process in the program in different training centres, thereafter to evaluate its application.

This SDL as a process needs training of the facilitators, mentors, students as well as teachers to adopt the SDL. Arrangement of workshops is costly to the individual training centers without the support of SCHS. Two large workshops per academic year per region (5 regions in Saudi Arabia) might be more practical than more frequent workshops.

As medical education is a new field in the country, the numbers of those who can help in preparation of the postgraduate training program to be SDL based program are limited. Asking the help of pioneers in this field from other countries might be appropriate at least in the first few years.

Although based on andragogical principles, the modules may be presented in a pedagogical way, thus promoting passive learning. The best way to master the rudiments of a new area is to be taught by an expert, at least at the beginning; introducing them to the fundamental principles and structures of SDL.

Self-directed modules may not be the best way to address learning needs in all domains of learning such as affective domain (4). Educators need to behave ethically, which includes not recommending a self-directed learning approach if it is not congruent with the learners' needs.

Students become better self-directed learners because of being in the curriculum for a longer time, and, hence, becoming more experienced. (15), which is an opportunity in our 4-years program.

Miflin and his colleagues (15) published in the next year to their previous study on application of PB curriculum in undergraduate medical school that in the light of the literature of higher education and in the experiences of others in problem-based medical curricula, the Learners need support and guidance to foster the development of self-directed, lifelong learning. Publishing a guide for students to SDL, in which the general educational principles are explained, enables students to understand the nature and purpose of the self direction in learning as a model. This can be introduced in a thorough introduction to the curriculum by means of orientation programs.

#### **The roles of the teacher/preceptor in SDL:**

Students will be assessed formatively over time to ensure their development of skills to take greater responsibility for directing their own learning (21) including the foundation knowledge, reasoning skills and confidence (15).

Miflin (15) described the tutor in SDL process as:

***initially model, then coach, and, as students develop expertise in the process, the tutor fades, intervening only where appropriate to ensure students make optimal use of the case for learning, and to ensure that they continue to monitor the quality of learning.***

In developing guidelines for educators, certain points need to be addressed. The following list summarizes points made by several writers (17) regarding how adult educators can best facilitate self-directed learning:

- Consider the student as an adult learner; with the background as the traditional teacher-centered learning as the student may be expected to have pitfalls in their understanding of the SDL and this needs to be addressed in the guidance.
- Help the learner identify the starting point for a learning project as it is new concept for them.
- Help learners acquire the needs assessment techniques necessary to discover what objectives they should set.
- Learn and teach inquiry skills, decision making, personal development, and self-evaluation of work.
- Promote gradual independence of the student.
- Encourage the setting of objectives that can be met in several ways and offer a variety of options for evidence of successful performance.
- Develop a partnership with the student by negotiating a learning contract for objectives, methods, and evaluation criteria.
- Make sure that learners are aware of resources and how to make use of them.
- Be a manager of the learning experience rather than an information provider.
- Provide examples of previously acceptable work (the minimal required). This will help in relieving student's anxiety.
- Recognize learner personality types and learning styles.
- Use techniques such as field experience and problem solving that take advantage of adults' rich experience base.

#### **Role of educational institutions and employers:**

The implementation of SDL will not be possible and maintained without the involvement of educational institutions and employers in providing SDL experiences. Hiemstra R (7) recommends certain points, the following:

- Conduct research on trends and learners' interests.
- Obtain the necessary tools to assess learners' current performance and to evaluate their expected performance.
- Provide opportunities for learners to reflect on what they are learning through half-day tutorial every week.

- Encourage critical thinking skills by incorporating such activities as seminars.
- Create an atmosphere of openness and trust to promote better performance.

I would add these points to what Hiemstra mentioned above:

- Promote Problem based small group learning.
- Promote inter-professional learning and teaching.
- Have the program directors meet regularly with panels of experts who can suggest curricula and evaluation criteria.
- Help protect learners against manipulation by promoting a code of ethics.
- Provide educators training on SDL.
- Provide a consult office for both educators and students for the best ways to deal with obstacles in application of SDL
- Conduct a 4 years-cyclical evaluation of the program process and outcome.

## Resources

Blended learning, defined as the combination of traditional face-to-face learning and asynchronous or synchronous e-learning. Blended learning appears to have a consistent positive effect in comparison with no intervention in health professions (22).

All students should have access to the training program Intranet and to the World Wide Web (23). Resources specific to training program needs are better provided in computer-based format (e-blackboard) to allow time-independent access for learners. Teachers should always be available through the bulletin board on the intranet website and by email. Those who are free can consult with educator on an individual basis if necessary.

Later in the program, learners rely less on educator-generated resources and use their patients as primary resources for learning. Although educators are encouraged to orient learners to resources in clinical departments, the educator is increasingly a role model and demonstrator of clinical practice rather than provider of factual knowledge and resources (15).

## Information skills

By the availability of resources mentioned above, I believe that the first year learners need to make use of the training program liaison with information specialists (librarians) who need to spend considerable time coaching learners in accessing and using databases, both in conventional and electronic forms. In clinical rotations in years 3 and 4, learners should maintain proficiency by applying their information skills in evidence-based practice. Their access to and use of information sources is increasingly self-directed, encouraged by and modeled on the practice of their educators.

## Methods used to foster SDL:

The following methods have been mentioned in literature as a practical tips for self direction in learning which are good to be used to foster the implementation of SDL in our program:

**Targeting learner-specific needs.** The claim that there is never enough time to teach everything about a clinical case, especially in outpatient teaching is no longer valid with one minute perception (OMP) as the teacher can know what is the learner's greatest need or deficit on a particular case. OMP is very helpful and perceived by residents as a good tool in family medicine teaching sessions (24).

**Assignments.** This is where a clinical question is identified during routine patient care by either the teacher or the student. The teacher will ask the student, or group of students to find related information that help in answering the question and report back to the teacher, group, or a class.

These assignments need to increase as the student becomes more familiar with information gathering skills.

**Volunteerism:** A day per week will be assigned for volunteerism where student or group of students independently identify a common need and search the answers which will help to adapt the reflective practice. This might be fostered further when the teacher can be a role model and practices some reflective practice in the teaching session with the students.

**Dissemination of knowledge:** As a result of the above two methods, I find dissemination of knowledge by and among the students will foster implementation of SDL. This can be achieved by student medical journal recognized by SCHS where publication in this journal is considered extra credit to the students.

**Learning contracts LC:** the first step in developing a positive student-teacher relationship is when a student and teacher agree, at the beginning of a rotation, on particular learning goals and come up with a plan for monitoring and evaluating progress. Students need help from the teacher on how to develop a LC. One day workshop for the teachers' refreshment on LC might be needed in the beginning of SDL implementation. (25)

As the LC is a dynamic in its nature, changing as the learner progresses in the learning process, the student will fill the LC with the help of the teacher and mentor, where it will be reviewed every three months for the 1st two years (R1 and R2), to adopt changes as the students progress in the program, then every year for the 2nd two years (R3 and R4).

**Reporting back.** Students will periodically (at every quarter of the rotation) report back to the teacher what they found. This is through a written format (log book, brief outline or 1-page handout, etc.). In this method the students will be asked to report back. It facilitates evaluation of the learner,

and requires the learner to critique, integrate, and present information. Feedback from the site of the teacher is important to help student improvement.

**Resources:** Where does the learner find information and answers? The program will offer standard textbooks, library electronic access (for medical literatures), electronic black boards or e-learning software platform like moodle e-learning platform (MEP) which enables educators to create online courses to encourage interaction and collaborative construction of learning content. It provides several opportunities for the 'teacher' to transform from being 'the source of knowledge' to being a facilitator and role model in the process of acquiring knowledge and skills (26).

As computers become more universally incorporated into clinic workstations, they will, in all probability, become the predominant resource.

**Portfolios:** A portfolio is a collection of products prepared by the student that provides evidence of learning and achievement related to a learning plan. A portfolio typically contains written documents but can include video or audio-recordings, photographs, and other forms of information. Students will be instructed to reflect upon what has been learned as this is an important part of constructing a portfolio. In addition to products of learning, the portfolio can include statements about what has been learned, its application, and remaining learning needs (27). Mentor would help student in identifying remaining learning needs and how they can be met. Portfolio will include a log of clinical procedures performed during training program; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan (e.g. Audit project), and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counseling provided to patients. Portfolio can be a paper work or electronic. The electronic one is very easy to design and practice with a lot of editing features, which I have practiced in the U of T e-blackboard.

Portfolios will be used for both formative and summative evaluation of students. Portfolios will be used for evaluating mastery of competencies that are difficult to evaluate in other ways such as practice-based improvement, use of scientific evidence in patient care, professional behaviors, and patient advocacy. Teaching experiences, morning report, patient rounds, individualized study or research projects are examples of learning experiences that portfolios will be most useful to assess them. The Royal College of Physicians and Surgeons of Canada in the Maintenance of Competence Program (MOCOMPS) has developed a portfolio system for recertification using Internet-based diaries called PCDiary© that could be adapted to residency evaluations (28).

**Practice based small group learning:** the evidence is supporting the use of Practice-Based Learning (PBL) as an effective method for teaching under-graduates in medical schools and used more and more in Continuous

Professional Development (CPD) activities (29). The research proves the PBSGL effectiveness in postgraduate teaching. (30, 31)

## Conclusion

In the adult learning theory, adults learn best when they are required to address problems and learning is maximized when it is self-directed so that adults study material that is most relevant to them. Clinicians engage in self-directed learning by first identifying a clinical problem, then pursuing the learning task, next acquiring the new knowledge or skill, and finally practicing the new knowledge or skill.(32)

In this paper, I have described a curricular intervention that employs several educational and administrative modalities to foster the self direction in learning in family medicine training program in Saudi Arabia. The program should be designed to incorporate principles of adult-learning theory. The program should contain exercises to enhance skills for assessing learning needs, developing flexible short- and long-term learning plans, and asking and answering clinical questions efficiently. I sought to characterize the effects of this teaching program on physicians' self-reported learning behaviors and self-efficacy for performing essential self-directed learning behaviors. Appropriate support at appropriate intervals means that, over time, students are motivated and enabled to guide their own efforts, secure in the knowledge that they have developed the skills and attributes which will allow them to continue learning which is effective.

Increasingly, instructional methods (PBL, SDL, EBM) are viewed as complementary rather than exclusive models. Didactic and teacher-centered teaching probably still has a role, even as other instructional strategies are utilized. "Blended" teaching strategies rather than predominant teaching strategies are increasingly being promulgated.

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## Appendices

### A. LEARNING CONTRACTS

In developing your learning contract, it may be useful if you have a sense of your own learning and cognitive styles. The following figure is provided to facilitate the learner who has never filled out a learning contract in obtaining some sense of what might be the best approach for this course.

#### SOME GUIDELINES FOR THE USE OF LEARNING CONTRACTS (Murad MH, 2008).

How do you develop a learning contract?

- Step 1: Diagnose your learning needs.
- Step 2: Specify your learning objectives.
- Step 3: Specify learning resources and strategies.
- Step 4: Specify target dates for completion.
- Step 5: Specify evidence of accomplishment.
- Step 6: Specify how the evidence will be validated.
- Step 7: Review your contract with consultants.
- Step 8: Carry out the contract.
- Step 9: Evaluation of your learning.

Your Learning Style Preferences		
	Self-Directed Learner	Other-Directed Learner
Learner Dependent	Standard contract with suggested structure used as basic guide	Standard contract using instructor suggestions
Learner Independent	Create own contract in terms of content and procedure	Develop own version of contract using instructor suggestions

### B. Types of Tools and resources used in SDL ((Murad MH, 2008).

Types of Tools and resources used in SDL	Tools and resources used for learner	Tools and resources used for tutor
Planning Tools	<ul style="list-style-type: none"> <li>• The Learning Contract</li> <li>• Self Analysis as a Learner</li> <li>• Self-Directed Learning Readiness Scale</li> <li>• Self-Directed Learning Perception Scale (SDLPS)</li> </ul>	<ul style="list-style-type: none"> <li>• Determining Your Teaching Style</li> <li>• Determining Individual Learning and Change Styles.</li> </ul>
Individual Study Techniques	<ul style="list-style-type: none"> <li>• Using Probes in Learning.</li> <li>• How to Read a Journal</li> <li>• Learning with Computers.</li> <li>• Using Self-Paced Modules.</li> <li>• Using Communication Technology.</li> <li>• Self-Directed Learning Modules.</li> <li>• Learning from Your Experiences.</li> <li>• Improving Writing Skills.</li> </ul>	<ul style="list-style-type: none"> <li>• Using Communication Technology.</li> <li>• Self-Directed Learning Modules.</li> </ul>
Personal Reflection Tools	<ul style="list-style-type: none"> <li>• Book/Article/Media Review Techniques</li> <li>• Reflecting on Learning at the Workplace</li> </ul>	<ul style="list-style-type: none"> <li>• Book/Article/Media Review Techniques</li> </ul>
Individual Skill Development	<ul style="list-style-type: none"> <li>• Portfolio Development</li> <li>• Improving Your Writing Skills</li> <li>• Improving your Discussing Skills,</li> <li>• Enhancing Your Questioning Skills,</li> </ul>	<ul style="list-style-type: none"> <li>• Portfolio Development</li> <li>• Enhancing Your Lecturing Skills</li> <li>• Enhancing Your Coaching Skills</li> </ul>