#3R Round Table: Self Directed Learning

**Location:** Room 210

**#3R1 (1226)**

Medical Students’ and Residents’ Self-Regulated Learning in the Clinical Environment: A Systematic Review

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**Background:** Self-regulated learning (SRL) is important for lifelong learning. Its cyclic process of setting learning goals, choosing learning strategies and assessing progress toward goals, reveals positive professional and educational outcomes of SRL. Therefore, it is important to determine how medical students and residents regulate their learning in the complex clinical environment.

**Summary of work:** We conducted a systematic review according to the guidelines of The Association for Medical Education in Europe. PubMed, EMBASE, Web of Science, PsycINFO, ERIC and Cochrane Library were searched from January 1992 to July 2016. Two reviewers independently performed the review process. Quality of included studies was assessed.

**Summary of results:** A total of 3341 articles were initially identified, with 18 included in the review. The analysis showed high variation in the use of SRL strategies by medical students and residents. Variation between learners was linked to individual (goal setting) and contextual (time pressure, patient care, supervision) characteristics.

**Discussion:** Although this review revealed more insight in strategies and influential factors of SRL in the clinical environment, the role of this specific context and how learners assess their progress towards goals remains unclear. This means that SRL in the clinical environment has not yet been used to its full potential.

**Conclusion:** SRL in the clinical environment is a complex process that results from an interaction between person and context. This systematic review points to influential factors that can be used in the clinical practice as a leverage to support the individual SRL needs of medical students and residents.

**Take-home message:** SRL in the clinical environment is a difficult process, highly specific for every individual, and influenced by multiple factors. Future research should focus on the role of SRL in the clinical context and on learners’ assessment of progress toward goals.

**#3R2 (2307)**

The role of the assessment system in the relation between self-regulated learning, participation and performance

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**Background:** Self-regulated learning (SRL) and participation in scheduled learning activities are key predictors of academic performance, especially when combined (Stegers-Jager et al, 2012). The goal of this study is to investigate possible differences in SRL, participation and academic performance, and in their relations, for students under two different assessment systems.

**Summary of work:** Year 1 medical students completed the Motivated Strategies for Learning Questionnaire and items on participation, under i) a conjunctive lower stakes, lower performance standard assessment system (n = 648) and ii) a compensatory higher stakes, higher performance standard assessment system (n = 529). Performance is operationalized as students’ average grades.

**Summary of results:** Students in the compensatory system showed significantly higher academic performance, task value, self-efficacy, organization, metacognition, effort regulation and time management compared to students in the conjunctive system, while intrinsic goal orientation and elaboration didn’t show significant differences. The relations between academic performance, SRL and participation were similar across assessment systems.

**Discussion:** The higher academic performance under a higher stakes, higher performance standard compensatory assessment system, seems to result from higher SRL and participation. Relations between SRL, participation and academic performance are similar across both assessment systems, meaning that the same measures explain differences in academic performance.

**Conclusion:** Characteristics of the assessment systems, such as the stakes, the performance standards, and the degree of compensation between grades, seem to be related to SRL, participation and academic performance.

**Take-home message:** Assessment systems need to be carefully designed, since they have the potential to optimize student learning and academic performance.
Background: Students use Self-Regulated Learning (SRL) to generate feedback about their own learning. Previous findings with SRL Microanalysis (SRL MAT) suggest that students who underperform in specific tasks have poor SRL skills. This exploratory study investigated the usefulness of SRL-MAT to evaluate the regulatory profiles of physiotherapy students in clinical procedures.

Summary of work: A SRL microanalytic protocol was administered to 26 Year 2 physiotherapy students (57% females) performing goniometry on peer students. The SRL-microanalysis protocol assessed goal setting, metacognitive monitoring, self-evaluative standards, and satisfaction. A purposive sample represented high and low performers in the task. Sessions were audio-recorded, transcribed and analyzed qualitatively.

Summary of results: There are 15 successful students: 14 are able to set procedures related goals, and monitored their performance. There are 11 unsuccessful students: 5 do not set specific goals beforehand and 6 show no concern with self-monitoring during performance. Pre-task self-efficacy beliefs and satisfaction with performance are higher in successful students.

Discussion: This study suggests that physiotherapy student SRL regulatory profiles might condition performance in clinical tasks. Our findings are in accordance with previous studies with medical students. With our SRL microanalytic protocol, we are able to detect differences in self-regulatory processes throughout the three phases of the SRL cycle.

Conclusion: Our findings suggest that providing feedback on self-regulatory processes to low performing physiotherapy students could benefit their performance in the goniometric task. SRL-MAT is a potentially useful protocol to generate information about task associates SRL skills. Further research is required to ensure generalizability to further tasks and institutions.

Take-home message: The use of a self-regulated microanalytic protocol can provide information to the benefit of performance and learning of clinical tasks in physiotherapy students.

#3R4 (411)
Is there a correlation between different measures of self-regulated learning in medical education?

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Background: There is increasing interest in understanding self-regulated learning (SRL), but SRL processes are commonly identified by using two different measures (real-time microanalysis and retrospective questionnaires). This pilot study was the first to examine the correlation between microanalysis and the Motivated Strategies for Learning Questionnaire (MSLQ) in medical education.

Summary of work: A standard SRL microanalysis assessment protocol was developed and administered to 76 Year 1 medical students whilst performing a biomedical science learning task. The verbal responses were recorded and coded by two independent assessors. All participants completed an MSLQ two weeks after performing the same learning task.

Summary of results: The SRL microanalysis self-efficacy measure had medium correlation with the MSLQ self-efficacy subscale composite score ($r= 0.39, p< 0.001$). There were no significant correlations between other SRL microanalysis measures (goal setting and strategic planning, metacognitive monitoring and adaptive inferences) and the related MSLQ subscale composite scores ($p> 0.05$).

Discussion: The lack of significant correlation between SRL microanalysis and questionnaire measures is consistent with the only previous research from another educational context. The two measures appear to identify different aspects of SRL, with microanalysis related to a student’s approach to a specific task and questionnaires related to a general approach.

Conclusion: This pilot study was the first to compare SRL microanalysis and a commonly used questionnaire measure of SRL in medical education. The results suggest that each measure identifies different aspects of SRL used by students. We recommend further studies with larger samples and different contexts to confirm our findings.

Take-home message: Fully understanding how students engage in SRL in medical education, especially to provide targeted feedback and remediation of struggling students, requires the use of both microanalysis and questionnaire measures since each measure identifies different aspects of SRL that are used by students.
#3R5 (3084)
Self-Directed Learning in Health Professions Education: A Scoping Review

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**Background:** Self-directed learning (SDL) is stated to be an essential tool for developing lifelong learning and ensuring that health professionals provide high quality evidence-based healthcare. This study aimed to explore the extent, role and impact of SDL in health professions education (HPE), using a scoping review of the literature.

**Summary of work:** A search for "self-directed learning" using PubMed yielded 1134 articles, of which 154 articles were included review. An Education Resources Information Center (ERIC) database search identified 12 additional articles. Summaries of these 166 articles were entered into an Excel spreadsheet. Collated data was analysed qualitatively and themes identified.

**Summary of results:** Articles came from a wide range of countries, with the USA being most common. Professionally, medicine dominated, followed by nursing and then physiotherapy. Most articles related to undergraduate training. Major reasons for using SDL included promotion of lifelong learning, developing critical thinking, empowerment of learners and enhancing academic performance.

**Discussion:** Many assumptions about SDL are made. The expectation that the outcomes of graduates will be improved through SDL is often reported as is the assertion that SDL produces lifelong learners, but little evidence is provided for these. Some evidence was found linking PBL with improved graduate competence and physician performance.

**Conclusion:** SDL is frequently used in HPE. Changing the curriculum to enhance SDL may improve academic performance and also competence, as well as self-motivation and efficacy. Whether it does this more effectively than other forms of learning in HPE, and whether these link to lifelong learning, is not clear.

**Take-home message:** SDL has been adopted as a strategy to promote critical thinking, enhance motivation and improve academic performance. The relationship between SDL and lifelong learning, and the impact of SDL on graduate outcomes, are not clear. The role of SDL in specific clinical contexts and programmes occurs deserves further exploration.

#3R6 (3055)
Working towards directed independent learning in undergraduate clinical skills

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**Background:** The use of self-directed learning (SDL) in clinical skills centres aims to prepare medical graduates for lifelong learning. However, a general lack of clarity about the purpose and meaning of SDL has led to confused approaches and negative connotations. Directed-independent learning (DIL) allows the students to engage with the curriculum.

**Summary of work:** We evaluated outcomes of 3rd year medical students’ use of our Clinical Skills Centre SDL room using a questionnaire and the booking records. Information obtained from consenting students sort to review how the SDL room was being utilised, identify areas working well and areas of improvements

**Summary of results:** Whilst the students generally found the dedicated SDL room useful, recognised barriers included: • A lack of direction when practising the skills; • Failure to understand best use of the facilities and equipment provided; • A lack of supplies / consumables for repeated practice; • Lack of clarity about resources available.

**Discussion:** SDL puts students under pressure to find their own way when trying to learn clinical skills. Whilst students needed the space to practice independently, providing some direction has the potential to make the journey from novice to expert less bumpy. DIL provides an opportunity for continued support whilst working independently.

**Conclusion:** Educators need to direct students to engage in self-regulation, realistic goal setting, appropriate method choice and use of strategy. In DIL, the student is expected to use their own initiative with staff guidance to access specific learning opportunities. This demands shared responsibility, clear understanding and feedback.

**Take-home message:** Ultimately, “one size does not fit all". The use of SDL for clinical skills is not enough on its own and might well not be suitable for novice medical students wanting to learn clinical skills for the first time. “See one, do one, teach one" needs challenging & replacing.