

Developing a Reflection Guiding Tool for underperforming medical students: An action research project

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Abstract: The ability to reflect is an important generic competence especially for underperforming students as they have to analyse their previous learning experiences to improve on future academic performances. This action research describes the process of a team when developing a reflection guiding tool (RGT). As the underperforming students may have difficulty in comprehending what is expected from them while using a reflective approach, we designed the RGT based on the six steps in Gibbs cycle; 1) Description, 2) Feelings/Reactions, 3) Evaluation, 4) Analysis, 5) Conclusions, and 6) Personal action plan. These underperforming students reflected on how, and why, they failed their assessments based on the proposed RGT. Findings revealed that RGT was able to make students aware of what reflection skill is and thus fulfilled its objective. It

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helped Year 1 and Year 2 underperforming medical students to reflect on their academic failure.

Keywords: reflection; Gibbs' cycle; medical education; reflective competence; generic competence; underperforming students; reflection guiding tool; soft skill.

I. Introduction

Action research is often associated with day-to-day work of the practitioners. Practitioners reflect on their practices for further improvement. Hence, action research is defined as systematic procedures in collecting information in order to improve their practices (i.e., teaching and student learning).¹ In the institution, we are members of an education unit which implements an undergraduate medical programme. This action research project was borne out of our disappointments with ourselves as educators when we realised that some medical students continued to underperform after we offered student support to them. Based on the interviews with underperforming students, it caught our attention when the students seemed to be unaware of their mistakes or weaknesses, although they have failed the examinations.

We asked ourselves one central question: How could these underperforming students recognise their mistakes or weaknesses? Self-knowledge is the ability of a person to recognise his or her strengths and weaknesses.² The process of recognising one's mistakes can be stimulating and motivating when the right tool is used. In this context, reflection is suitable in aiding students in their journey to discover their self-knowledge. In 1910, Dewey stated reflection as a thinking process – "*the active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends*".³ Dewey further asserted that true learning would take place when a person learns by doing and reflecting on one's experience. We thought it may be an answer to the central question. Hence, the goal of our action research is to help underperforming students to reflect on their mistakes or weaknesses.

¹ John Creswell, *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*, 4th ed. (Boston: Pearson, 2011).

² Paul R. Pintrich, "The role of metacognitive knowledge in learning, teaching, and assessing." *Theory into Practice* 41, no. 4 (2002).

³ John Dewey, "Chapter One - What Is Thought?," in *How We Think* (Boston: D.C. Heath & Co, 1910), 9.

From a theoretical perspective, reflection may have different definitions⁴ such as: (a) the ability to think critically on current knowledge and experience, subsequently creating and connecting meanings perceived from previous experiences to the current one;⁵ (b) an act to ponder upon an experience;⁶ and (c) deliberate intention to act in a thoughtful manner, freeing the individual from his/her unconscious, routine behaviour.⁷ Even though there exist different definitions of reflection,⁸ it came to a common understanding that reflection is a desired thinking and practice to improve on one's own learning, behaviour and practice,⁹ In this study, we define reflection as a conscious thinking to improve on one's learning experiences and academic performances. Based on the literature, we also understood that the term reflection could be used interchangeably with reflective capacity,¹⁰ self-reflection,¹¹ reflective

⁴ Carol Rodgers, "Defining reflection: Another look at John Dewey and reflective thinking," *Teachers College Record* 104, no. 4 (2002).

⁵ Karen Mann, Jill Gordon, and Anna MacLeod, "Reflection and reflective practice in health professions education: A systematic review," *Advances in Health Sciences Education* 14, no. 4 (2009).

⁶ Rebecca Miller-Kuhlmann, Patricia S. O'Sullivan, and Louise Aronson, "Essential steps in developing best practices to assess reflective skill: A comparison of two rubrics," *Medical Teacher* 38, no. 1 (2016).

⁷ Atilla Çimer, Sabiha Odabaşı Çimer, and Gülşah Sezen Vekli, "How does reflection help teachers to become effective teachers," *International Journal of Educational Research* 1, no. 4 (2013).

⁸ Sissel Eikeland Husebø, Stephanie O'Regan, and Debra Nestel, "Reflective practice and its role in simulation," *Clinical Simulation in Nursing* 11, no. 8 (2015).

⁹ Atilla Çimer, Sabiha Odabaşı Çimer, and Gülşah Sezen Vekli, "How does reflection help teachers to become effective teachers," *International Journal of Educational Research* 1, no. 4 (2013).

¹⁰ Lisa Jane Chaffey, Evelyne Johanna Janet de Leeuw, and Gerard Anthony Finnigan, "Facilitating students' reflective practice in a medical course: Literature review," *Education for Health* 25, no. 3 (2012); Tracy Moniz, Shannon Arntfield, Kristina Miller, Lorelei Lingard, Chris Watling, and Glenn Regehr, "Considerations in the use of reflective writing for student assessment: Issues of reliability and validity," *Medical Education* 49, no. 9 (2015); Abigale L. Ottenberg, Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina, "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement," *Medical Teacher* 38, no. 7 (2016); and Hedy S. Wald, Jeffrey M. Borkan, Julie Scott Taylor, David Anthony, and Shmuel P. Reis, "Fostering and evaluating reflective capacity in medical education: Developing the REFLECT rubric for assessing reflective writing," *Academic Medicine* 87, no. 1 (2012).

¹¹ Sarah Brand, Patrick Lancaster, Irene Gafson, and Helen Nolan, "Encouraging Reflection: Good Doctor or Bad Doctor?," *Medical Education* 51, no. 11 (2017); and Sandra E. Carr, and Paula H. Johnson, "Does self-reflection and insight correlate with academic performance in medical students?," *BMC Medical Education* 13, no. 1 (2013).

skill/competence,¹² reflective thinking,¹³ reflective teaching¹⁴ and reflective practice.¹⁵

We were also convinced by published evidence of past studies on the effectiveness of reflection. Reflection is believed to be especially important for students' success in both higher education and future professional practice. There is evidence in the literature,¹⁶ indicating that reflection provides benefits (Figure 1) such as deep learning,¹⁷ improved critical thinking,¹⁸ and encouragement of self-expression.¹⁹ Reflection not only helps in developing and building professionalism²⁰ and

¹² Hanke Dekker, Johanna Schönrock-Adema, Jos W. Snoek, Thys van der Molen, and Janke Cohen-Schotanus, "Which characteristics of written feedback are perceived as stimulating students' reflective competence: An exploratory study," *BMC Medical Education* 13, no. 1 (2013); Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017); and Rebecca Miller-Kuhlmann, Patricia S. O'Sullivan, and Louise Aronson, "Essential steps in developing best practices to assess reflective skill: A comparison of two rubrics," *Medical Teacher* 38, no. 1 (2016).

¹³ Carol Rodgers, "Defining reflection: Another look at John Dewey and reflective thinking," *Teachers College Record* 104, no. 4 (2002).

¹⁴ Atilla Çimer, Sabiha Odabaşı Çimer, and Gülşah Sezen Vekli, "How does reflection help teachers to become effective teachers," *International Journal of Educational Research* 1, no. 4 (2013).

¹⁵ Sissel Eikeland Husebø, Stephanie O'Regan, and Debra Nestel, "Reflective practice and its role in simulation," *Clinical Simulation in Nursing* 11, no. 8 (2015); Linda Orkin Lewin, Nancy J. Robert, John Raczek, Carol Carraccio, and Patricia J. Hicks, "An online evidence based medicine exercise prompts reflection in third year medical students," *BMC Medical Education* 14, no. 1 (2014); and Lynette Pretorius, and Allie Ford, "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study," *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016).

¹⁶ Amy Hayton, Ilho Kang, Raymond Wong, and Lawrence K. Loo, "Teaching medical students to reflect more deeply," *Teaching and Learning in Medicine* 27, no. 4 (2015).

¹⁷ Sharleen L. O'Reilly and Julia Milner, "Transitions in reflective practice: Exploring student development and preferred methods of engagement," *Nutrition & Dietetics* 72, no. 2 (2015); and Lucy Philip, "Encouraging reflective practice amongst students: A direct assessment approach," *Planet* 17, no. 1 (2006).

¹⁸ Margaret M. Plack, Maryanne Driscoll, Sylvene Blissett, Raymond McKenna, and Thomas P. Plack, "A method for assessing reflective journal writing," *Journal of Allied Health* 34, no. 4 (2005); and Cherie Tsingos, Sinthia Bosnic-Anticevich, John M. Lonie, and Lorraine Smith, "A model for assessing reflective practices in pharmacy education," *American Journal of Pharmaceutical Education* 79, no. 8 (2015).

¹⁹ Johanna Shapiro, Deborah Kasman, and Audrey Shafer, "Words and wards: A model of reflective writing and its uses in medical education," *Journal of Medical Humanities* 27, no. 4 (2006).

²⁰ Atilla Çimer, Sabiha Odabaşı Çimer, and Gülşah Sezen Vekli, "How does reflection help teachers to become effective teachers," *International Journal of Educational Research* 1, no. 4

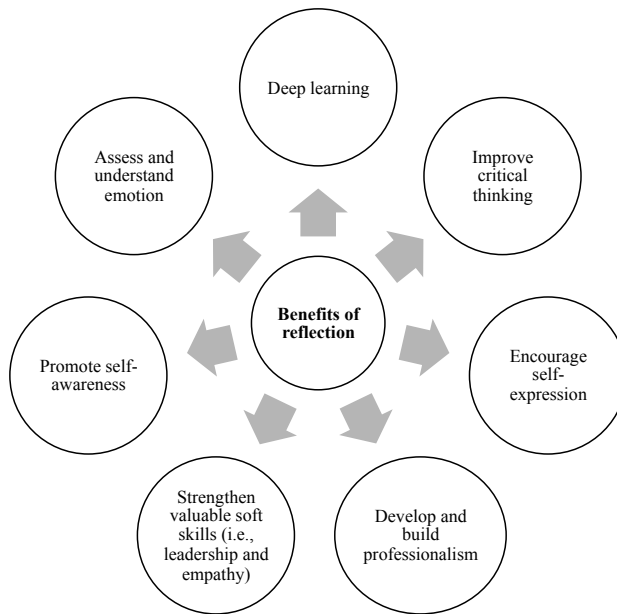


Figure 1
Benefits of reflection

leadership,²¹ but it also strengthens other valuable soft skills such as emotional intelligence and empathy.²² Moreover, reflection provides an opportunity to assess and understand the emotional aspect of the current experience.²³ Such opportunity is believed to be valuable as it allows assimilation of empathy

(2013); Vicki Langendyk, Glenn Mason, and Shaoyu Wang, "How do medical educators design a curriculum that facilitates student learning about professionalism?," *International Journal of Medical Education* 7 (2016); and Patricia Seymour, and Maggie Watt, "The Professional Competencies Toolkit: Teaching reflection with flash cards," *Medical Education* 5, no. 49 (2015).

²¹ Charlotte Moen, and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016); and Heather Wagenschutz, Erin McKean, Katie Zurales, and Sally A. Santen, "Facilitating guided reflections on leadership activities," *Medical Education* 50, no. 11 (2016).

²² Gobinder Singh Gill, "The Nature of Reflective Practice and Emotional Intelligence in Tutorial Settings," *Journal of Education and Learning* 3, no. 1 (2014).

²³ Lynette Pretorius and Allie Ford, "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study," *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016).

into clinical practices²⁴ and promotes compassionate patient care. These occur through means of promoting self-awareness,²⁵ prompting critical assessment on routine practice and encouraging change for better practice.²⁶

Medical educators have attempted various methods of student support to support underperforming students with varying degree of success. However, there was a lack of theoretical foundation on the design of these student support.²⁷ For several student support that applied learning theories (e.g., self-regulated learning) into their designs, reflection is needed to overcome the barrier (i.e., one's will) for accepting these student support.²⁸ In this study, we applied reflection as the theoretical foundation to design an appropriate student support for the underperforming students.

From a practical perspective, a number of challenges were also reported with attempts to help students in developing their reflective capacity (Figure 2). Although reflection is a valuable competency, it may be negatively viewed by the students as medical schools inadvertently assign students with excessive reflective assignments of similar themes.²⁹ Consequently, reflection becomes institutionalised and perceived as another task³⁰ that needs to be 'ticked off' the to-do list,³¹ hence, lessened its learning value.³² Therefore, medical schools were advised to review their curriculum regularly. Students may also not voluntarily spend time in reflection, which may be attributed to

²⁴ Lynette Pretorius and Allie Ford, "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study," *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016).

²⁵ John Sandars, "The use of reflection in medical education: AMEE Guide No. 44," *Medical Teacher* 31, no. 8 (2009).

²⁶ Charlotte Moen, and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

²⁷ Adina Kalet, Jeannette Guerrasio, and Calvin L. Chou, "Twelve tips for developing and maintaining a remediation program in medical education," *Medical Teacher* 38, no. 8 (2016).

²⁸ John Sandars, Rakesh Patel, Helen Steele, and Martin McAreavey, "Developmental student support in undergraduate medical education: AMEE Guide No. 92," *Medical Teacher* 36, no. 12 (2014).

²⁹ Silas P. Trumbo, "Reflection fatigue among medical students," *Academic Medicine* 92, no. 4 (2017).

³⁰ Douglas P. Larsen, Daniel A. London, and Amanda R. Emke, "Using reflection to influence practice: Student perceptions of daily reflection in clinical education," *Perspectives on Medical Education* 5, no. 5 (2016).

³¹ Silas P. Trumbo, "Reflection fatigue among medical students," *Academic Medicine* 92, no. 4 (2017).

³² Veronica Ann Mitchell, "Diffracting reflection: A move beyond reflective practice," *Education as Change* 21, no. 2 (2017).

poor motivation³³ and/or lack of time due to packed medical curriculum.³⁴ Moreover, reflection was also perceived as a time-consuming task³⁵ causing students to opt for the easy way out by resorting to their default practice or behaviour. In addition, reflection could also be an uncomfortable act for some³⁶ as they were reluctant to question their own practices³⁷ and felt vulnerable to be fully conscious of their own thoughts.³⁸ It is also interesting to note that there is an on-going shift in the utilisation of reflection, from learning to assessment. Perhaps, one of the reasons behind this shift was the challenge to accurately assess students' competence in major competencies such as professionalism and interpersonal skills.³⁹ However, this poses another challenge where students would intentionally perform carefully to pass the reflective assessments rather than genuinely perform reflection,⁴⁰ which could be used for their own benefits. Hence, implementing reflection into assessment would diminish students' personal reflexivity and undermine the value of learning reflection in its own light.⁴¹ Ironically, as 'assessment

³³ Lisa Jane Chaffey, Evelyne Johanna Janet de Leeuw, and Gerard Anthony Finnigan, "Facilitating students' reflective practice in a medical course: Literature review," *Education for Health* 25, no. 3 (2012).

³⁴ Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017); and Douglas P. Larsen, Daniel A. London, and Amanda R. Emke, "Using reflection to influence practice: Student perceptions of daily reflection in clinical education," *Perspectives on Medical Education* 5, no. 5 (2016).

³⁵ Charlotte Moen and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

³⁶ Linda Orkin Lewin, Nancy J. Robert, John Raczek, Carol Carraccio, and Patricia J. Hicks, "An online evidence based medicine exercise prompts reflection in third year medical students," *BMC Medical Education* 14, no. 1 (2014).

³⁷ Charlotte Moen and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

³⁸ Linda Orkin Lewin, Nancy J. Robert, John Raczek, Carol Carraccio, and Patricia J. Hicks, "An online evidence based medicine exercise prompts reflection in third year medical students," *BMC Medical Education* 14, no. 1 (2014).

³⁹ Abigale L. Ottenberg, Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina, "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement," *Medical Teacher* 38, no. 7 (2016).

⁴⁰ Tracy Moniz, Shannon Arntfield, Kristina Miller, Lorelei Lingard, Chris Watling, and Glenn Regehr, "Considerations in the use of reflective writing for student assessment: Issues of reliability and validity," *Medical Education* 49, no. 9 (2015).

⁴¹ Vicki Langendyk, Glenn Mason, and Shaoyu Wang, "How do medical educators design a curriculum that facilitates student learning about professionalism?," *International Journal of Medical Education* 7 (2016); and Charlotte Moen, and Patricia Prescott, "Embedding

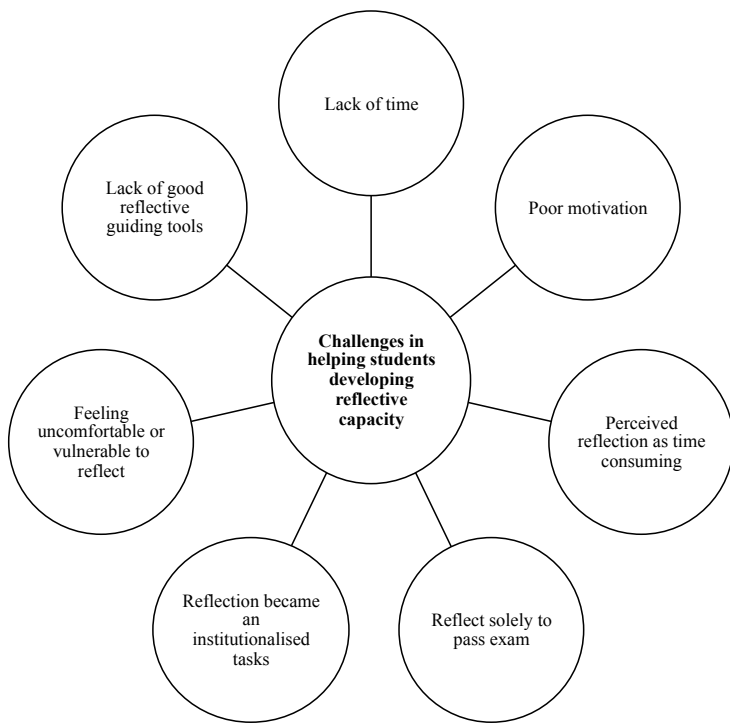


Figure 2
Challenges in helping students developing reflective practice

drives learning’,⁴² students do indirectly learn on how to reflect despite their goals being to pass their assessments. Yet, adopting reflection into assessments was observed as an alternative to emphasize the importance of reflection so that students would take these assessments seriously.⁴³ However, students

a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum,” *International Journal of Medical Education* 7 (2016).

⁴² Vicki Langendyk, Glenn Mason, and Shaoyu Wang, “How do medical educators design a curriculum that facilitates student learning about professionalism?,” *International Journal of Medical Education* 7 (2016); and Rebecca Miller-Kuhlmann, Patricia S. O’Sullivan, and Louise Aronson, “Essential steps in developing best practices to assess reflective skill: A comparison of two rubrics,” *Medical Teacher* 38, no. 1 (2016).

⁴³ Lisa Jane Chaffey, Evelynne Johanna Janet de Leeuw, and Gerard Anthony Finnigan, “Facilitating students’ reflective practice in a medical course: Literature review,” *Education for Health* 25, no. 3 (2012).

would find reflection as irrelevant if it was not part of summative assessments and the act of reflection may be neglected by the students.⁴⁴

Considering all these aspects reported in literature, we developed a reflection guiding tool for underperforming students so they could reflect on their academic failures.

II. Methodology

We will describe in the following section on how we have developed a reflection guiding tool (RGT) using the action research process of plan-act-observe-reflect cycle.⁴⁵ Action research is useful as it serves as a means for us to take action by reflecting and improving on our own practice.⁴⁶

II.1. Plan (Planning of an Action to Overcome the Issue)

II.1.1. Context of the Study

The RGT is meant for the use of our students, hence the plan has to be aligned to the context. This is a 5-years medical programme. In terms of its curriculum, Year 1 and Year 2 are pre-clinical years where students would acquire knowledge on basic and clinical sciences albeit having some patient contacts (e.g. history taking). Next, Year 3, Year 4 and Year 5 are clinical years, where students would apply the knowledge and skills learned into the clinical setting and spend most of their time in the hospital or clinics. There are five modules/blocks in the Year 1, which are 1) Language in Medicine, 2) Foundation, 3) Musculoskeletal Sciences, 4) Cardiovascular Sciences, and 5) Respiratory Sciences. Meanwhile, there are six modules/blocks in Year 2, which are 1) Haematology, 2) Neurosciences, Vision and Behaviour, 3) Endocrinology, Nutrition and Reproductive Health, 4) Renal and Urology, 5) Gastroenterology and Nutrition, and 6) Oncology and Palliative Care. Reflection is also incorporated into the curriculum but it is applied in a

⁴⁴ Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017).

⁴⁵ Elizabeth Koshy, Valsa Koshy, and Heather Waterman, *Action Research in Healthcare* (Sage, 2010).

⁴⁶ John Creswell, *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*, 4th ed. (Boston: Pearson, 2011).

general context. For instance, all Year 1 medical students are required to complete a written assignment by recalling and reflecting on their best or worst experience throughout the academic year before they progress to the next academic year. On the other hand, the RGT is designed to cater for the needs of the underperforming students who have either failed the assessments and/or are required to repeat in the subsequent academic year.

In terms of its assessments, there are a number of assessments in an academic year, but students usually fail the knowledge-based written assessments, namely the Required Summative Assessments (RSA) and Barrier Assessments (BA). In the context of this integrated medical curriculum, RSA and BA are equivalent to mid-year and final-year assessments respectively. There was no tendency observed as the percentage of underperforming students differs between each cohort. Pre-clinical years underperforming medical students in the present study refers to: 1) Year 1 and Year 2 students who failed in their mid-year assessments (RSA), and 2) Year 1 and Year 2 students who failed in their final-year assessments (BA) and were required to repeat the whole one academic year (Second attempt).

II.1.2. Development of the Reflection Guiding Tool (RGT)

The RGT should consider the needs of the users. In the institution, we have been conducting individual semi-structured interviews with Year 1 and Year 2 underperforming students since 2013. During the earlier times, the available student support (i.e., professional counselling and student welfare) was mostly 'passive'. The term 'passive' refers to generally offer support to students without actively identify those who have underperformed. Hence, underperforming students who did not 'proactively' seek for help would be left to their own devices. From these past experiences, an 'active' educational support (e.g., semi-structured interview) was developed. Through this intervention, all underperforming students were identified and offered the individual interview.

Throughout the three years of interviewing underperforming medical students, we realised that most students did not reflect beforehand and the acts of reflection were only initiated during the interviews. As a result, the interviews took longer since students needed more time to think about what had happened and why they thought and decided to act in a certain way. Hence, starting from 2016, a simple written reflection essay was incorporated into the interview sessions. These efforts were made with the aims to

promote reflection in students prior to the interview and triangulate with the information collected during the interviews. The first version of the reflection essay has three main questions to probe students in their own practice of reflection (refer Appendix 1). However, we then realised that the majority of the students' reflections were superficial and lacking the depth of a full reflection. It was also noticeable that the unstructured reflection might not be adequate. Consequently, the reflection essay was further improvised into a RGT in early 2017. The improvised version incorporated a reflection theory (Gibbs' reflective cycle)⁴⁷ while adding three additional sections.

Medical students are often expected to be able to reflect with little clear instructions or guidance on how to do so.⁴⁸ Each student might have different level of reflection skills,⁴⁹ and following a theory could guide students in reflecting.⁵⁰ Hence, we opted for a theory to structurally guide these repeating students in reflecting.

Gibbs' reflective cycle is one of the common theories for reflection.⁵¹ The reflective cycle consists of six general steps⁵² which are; 1) Description, 2) Feelings/Reactions, 3) Evaluation, 4) Analysis, 5) Conclusions, and 6) Personal action plans. In each step, probing questions to oneself would help to facilitate individual reflection.⁵³ Moreover, this cycle has been tested in various studies in health sciences fields such as nursing, midwifery practice and physiotherapy.⁵⁴ The use of Gibbs' reflective cycle could also be seen at National Health Service (NHS) in UK, where they implemented these six steps

⁴⁷ Graham Gibbs, "Learning by doing: A guide to teaching and learning methods," *Further Education Unit* (1988).

⁴⁸ Sissel Eikeland Husebø, Stephanie O'Regan, and Debra Nestel, "Reflective practice and its role in simulation," *Clinical Simulation in Nursing* 11, no. 8 (2015); and Lynette Pretorius, and Allie Ford, "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study," *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016).

⁴⁹ Amy Hayton, Ilho Kang, Raymond Wong, and Lawrence K. Loo, "Teaching medical students to reflect more deeply," *Teaching and Learning in Medicine* 27, no. 4 (2015).

⁵⁰ Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017).

⁵¹ Ken Hargreaves, "Reflection in medical education," *Journal of University Teaching and Learning Practice* 13, no. 2 (2016).

⁵² Graham Gibbs, "Learning by doing: A guide to teaching and learning methods," *Further Education Unit* (1988).

⁵³ Veronica Ann Mitchell, "Diffracting reflection: A move beyond reflective practice," *Education as Change* 21, no. 2 (2017).

⁵⁴ Sissel Eikeland Husebø, Stephanie O'Regan, and Debra Nestel, "Reflective practice and its role in simulation," *Clinical Simulation in Nursing* 11, no. 8 (2015).

Table 1
 Outline of questions employed in accordance
 to the six steps in Gibbs’ reflective cycle

Step in Gibbs’ Reflective Cycle	Examples of Questions in Gibbs’ Reflective Cycle (1998)	Examples of Questions in Guided Reflection Protocol
Step 1: Description	<ul style="list-style-type: none"> • What happened? 	<ul style="list-style-type: none"> • What happened? (Did you encounter any problem in terms of your study approach/ personal life/social life during that time?) • How did you cope?
Step 2: Feelings/ Reactions	<ul style="list-style-type: none"> • What were your reactions and feelings? 	<ul style="list-style-type: none"> • What were you thinking and feeling during that situation? And why?
Step 3: Evaluation	<ul style="list-style-type: none"> • What was good or bad about the experience? 	<ul style="list-style-type: none"> • What did you learn from that situation?
Step 4: Analysis	<ul style="list-style-type: none"> • What sense can you make of the situation? 	<ul style="list-style-type: none"> • Why did you think that situation happened?
Step 5: Conclusions	<ul style="list-style-type: none"> • What can be concluded from these experiences and the analyses you have undertaken? 	<ul style="list-style-type: none"> • If you have a chance to change your action at that time, what would you do?
Step 6: Personal action plan	<ul style="list-style-type: none"> • What steps are you going to take on the basis of what you have learnt? 	<ul style="list-style-type: none"> • Based on what had happened, did you prepare an action plan for the forthcoming BA? • How did you make sure that you carry out your action plan properly? Describe.

in their reflective portfolio⁵⁵ as a requirement for annual appraisals. In addition, this reflective cycle is appropriate for the use of students at their early stages of study as the format is less complicated. However, it somehow manages to sufficiently promote student engagement into the reflection process.⁵⁶

⁵⁵ Charlotte Moen and Patricia Prescott, “Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum,” *International Journal of Medical Education* 7 (2016).

⁵⁶ Peter Mark Wilding, “Reflective practice: A learning tool for student nurses,” *British Journal of Nursing* 17, no. 11 (2008).

The students were given one week duration to complete the RGT. As an overview, there are four main sections in the RGT. The first section is about students' general perception of the need to reflect on their past experiences. This is followed by several questions on students' personal and family background information. Such information may provide clues and/or insights which could be extrapolated to explain the students' behaviours or actions.⁵⁷ The second section is about students' initial reason and current motivation to pursue medicine. Students' current motivation to continue studying medicine is perceived to be more valuable than their initial reasons, as motivation could change over time.⁵⁸ Nevertheless, both types of information would be useful to understand the students' behaviour and performance level. The third section is about the students' reflection on how and why they underperformed. This section incorporated six steps in the Gibbs' reflective cycle as the reflection strategy to indirectly guide and teach these underperforming students how to reflect on their academic performance. Students were guided to reflect on both of their learning experiences prior to the mid-year and final-year assessments. Finally, the fourth section is focussing on how the students currently feel and their action plan for the second attempt. Table 1 outlines questions employed in the RGT according to each step in the Gibbs' reflective cycle.

II.1.3. Validation of Reflection Guiding Tool (RGT)

In addition, validation on the RGT was conducted at two levels. The first level was content validation by three experts (academicians); 1) two academicians within the institution, and 2) an independent academician external to the institution. We sent a copy of RGT to all experts and in turn, received their written feedback on improving the content, structure, questioning style and language used. After revising the protocol based on the received feedback, we then proceeded to the second level of validation.

The second level employed face validation by four underperforming students from two previous cohorts. Students were asked for a meeting where they were briefed to read through and give comments or feedback on the

⁵⁷ John P. Bean, "Dropouts and turnover: The synthesis and test of a causal model of student attrition," *Research in Higher Education* 12, no. 2 (1980).

⁵⁸ Chan Choong Foong, Nik Nadia Nik Nazri, and Nurul Atira Khairul Anhar Holder, "I am Becoming a Doctor: Mine or Someone Else's Will? Or Does it Even Matter? A Qualitative Investigation," *EURASIA Journal of Mathematics, Science and Technology Education* 14, no. 7 (2018).

protocol. Afterwards, students were given several days to complete the task. Examples of the feedback (both written and verbal) were given on rewording the questions or terms that were perceived as insensitive or unclear, and these concerns were addressed. Hence, student feedback was found to be very helpful as they had experienced failure themselves, so they could relate to the context of the study. The reflection guiding tool was then further refined according to the student feedback and was again piloted in early 2017 with a new batch of underperforming medical students ($n=4$ students). No additional comments for revision were received from the new batch of medical students during the second pilot study hence, this concluded the validation process of RGT (see Appendix 2).

II.2. Act (*Implement the selected action to overcome the issue*)

The RGT was ready to be used after incorporating feedback from experts and underperforming students. The present study has received ethical approval from the research ethics committee of the institution. Since the academic session of 2017/2018, meetings have been conducted with a group of underperforming students after the announcement of results for mid-year and final-year assessments. This was the time where the purposes of RGT were explained to the students. In addition, students were informed that their participation is voluntary and non-participation would not impact on their future assessment results. The management of identifiable and confidential data was also explained. Furthermore, written consent from each consented student was obtained to retrieve personal data.

For academic session 2017/2018, there were 11 Year 1 and 30 Year 2 underperforming medical students. Meanwhile, for academic session 2018/2019, there were only four Year 1 and five Year 2 underperforming students. In total, there were 50 underperforming students for both academic sessions. However, 15 students did not consent for the study and this left 35 consenting students who participated (Table 2). These 35 consented students included, four Year 2 students who used the RGT more than once and still failed in their assessments.

RGT was disseminated to all consented underperforming students ($n=35$ students). Students then completed the RGT based on their previous learning experiences (first attempt) and their responses were returned back to us through email. The importance of honesty was emphasized as reflection is intended to help students discover the 'real cause' of academic failure and for their own benefits. As the RGTs were returned, there was a possibility that due

Table 2
Summary on the number of Year 1 and Year 2
underperforming medical students

Academic session	Year 1 students who failed in their mid-year assessments (RSA)	Year 1 students who failed in their final-year assessments (BA) and are required to repeat the whole one academic year (Second attempt)	Year 2 students who failed in their mid-year assessments (RSA)	Year 2 students who failed in their final-year assessments (BA) and are required to repeat the whole one academic year (Second attempt)
2017/2018	Total: 2	Total: 9	Total: 26	Total: 4
	Consented: 0	Consented: 8	Consented: 22	Consented: 0
2018/2019	Total: –	Total: 4	Total: –	Total: 5
	Consented: –	Consented: 2	Consented: –	Consented: 3

to self-consciousness, some students may have altered their original responses in the RGT to avoid possible judgement.⁵⁹ Therefore, students were discouraged to write for the sake of portraying ‘a good impression’ as we also have the similar intention to help them overcome their failures. Such precautions were taken to promote honest reflection in a safe environment for each student, as one study discovered that some students may write strategically for the medical educators to conform to what is expected of them.⁶⁰

After a week or two, students were contacted for individual interviews where each interview lasted around 60-120 minutes. Semi-structured interviews in the present study could be viewed as a reflective dialogue, which meant to facilitate, challenge and debrief students on their reflections. The use of silence, prompts and probing questions, empathetic listening and adequate responding were employed to facilitate students’ reflection⁶¹ in the interview.

⁵⁹ Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, ““Tweet”-Format writing is an effective tool for medical student reflection,” *Journal of Surgical Education* 75, no. 5 (2018).

⁶⁰ Veronica Ann Mitchell, “Diffracting reflection: A move beyond reflective practice,” *Education as Change* 21, no. 2 (2017).

⁶¹ Chris Bulman, Judith Lathlean, and Mary Gobbi, “The process of teaching and learning about reflection: Research insights from professional nurse education,” *Studies in Higher Education* 39, no. 7 (2014).

II.3. *Observe (Collect and analyse data to evaluate on the selected action)*

All 35 sets of RGT were analysed independently by two authors (NAKAH and ZLS) using a qualitative analysis approach.⁶² Both authors read the RGT submitted by the students multiple times to familiarise themselves with the data. Each individual author then generated initial codes to describe the content of RGT. Similar codes were then grouped accordingly to category and eventually reorganised into several themes. Following individual coding, both authors discussed and constantly compared their analysis until a consensus was achieved. Triangulation between analysts increases the credibility of qualitative findings. After a consensus was reached, the findings were informed to the third reviewer (CCF) who was not involved with the coding but assisted in reviewing the final codes and themes. Further discussion was instigated between the three authors before the finalisation of the codes and themes were made.

III. Findings

Next, students' general thoughts on reflection and their perspective on the RGT are reported.

III.1. *Year 1 and Year 2 underperforming students' general thoughts on reflection*

There were three themes surrounding underperforming students' general thoughts on reflection, which are; past personal experience, value of reflection, and product of reflection.

III.1.1. Past personal experience

This theme is characterised by one or more incidents in the past that leaves an impression upon the underperforming students. When asked about their general thoughts of reflection, the majority of these underperforming

⁶² Virginia Braun, and Victoria Clarke, "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006).

students first linked reflection with their past experiences. An example was seen when a student reflected on her past experiences where she did not give her full efforts from the very beginning as she continued with her poor study method and attitude. This suggests a sense of regret on what she did in the past and also an awareness on the root cause of her academic underperformance. There was also a tinge of hope as she planned to change and give her very best for the next attempt.

Yes, I really need to reflect a lot from my last year experience. I know that I did not give my full effort last year from the very beginning; I started my foundation block with a very bad study method and attitude. I really want to make sure that I change all of that and do my best this time. (Student 3, Year 1)

One student remarked that reflection was important in thinking back about past experiences as there was a reason for everything that happened. She further added that without reflection, she would be denying everything that has happened to her and the act of denial itself was not helpful for her future progress.

It is important to reflect what happened in the past as there should be a reason regarding why things happen to us and what went wrong. If I choose not to reflect, I would say I am denying what have happened to me and it would not help in my progress. (Student 1, Year 1)

Meanwhile, some students commented that reflection gave a reasonable conclusion on what happened in the past. Apart from analysing what was good and bad from an experience, reflection was felt necessary to give oneself adequate closure on the past events.

Yes, I think that I need to reflect on my experience of the past year to be able to analyse where are the good and bad and be able to learn from it. By doing so, it will also feel like a closure of the previous year. (Student 9, Year 1)

III.1.2. Value of reflection

After relating reflection to their past experiences, many students also found reflection as valuable. Majority of them agreed that reflection was worth it in figuring what has actually happened.

Yes. It is worth it to reflect and figure out what is actually happened... (Student 12, Year 2)

Another example demonstrated that a student was willing to spend his time on reflection as he found it as valuable. However, guidance was necessary for him to perform the act of reflection.

It worth my time, but certainly need certain people to guide me along when guided is needed. (Student 13, Year 2)

On the other hand, one student found reflection as ‘a different thing to do’ but at the same time, ‘interesting’. Due to these perceptions, he found reflection as valuable and willing to try on something that he considered as new. There is also evidence pointing out a sense of hope that reflection would be helpful in his current situation.

For me, it is quite (a) different thing to do but seems interesting. It might be worth it. There's no harm in trying something new. Who knows it might help. (Student 10, Year 2)

Despite the majority of underperforming students perceiving reflection as valuable, there were still a minority who viewed reflection as less valuable. Some students reported that reflection may be useful only in certain situations, or up to a certain extent, as they perceived reflection as a mere act of continuous thinking upon past mistakes. Hence, prior perception on reflection echoes on how these students associated reflection to negative impacts such as demotivation.

Reflecting in certain situations may be worth it. Taking RSA 2 for an example, I can think about what has gone wrong in my preparation and try to improve on it. However, continuously thinking about what went wrong can bring a negative impact and demotivate a person. (Student 19, Year 2)

Reflecting is an important component if one has to learn lessons from mistakes, however pondering upon past mistakes isn't of much use. So it has its place but till a certain extent. (Student 11, Year 2)

Another student shared that he was uncertain on what to feel about reflection and at the same time, he was also unsure about the value of reflection. Therefore, he preferred not to reflect to keep failure to himself as a source of inspiration.

I don't quite know how to feel. I am also not quite sure of its worth... I prefer to keep failure to myself as a source of inspiration. (Student 5, Year 2)

There was also some evidence that revealed the association of time constraint with the value of reflection. One student perceived reflection as not

important as she could not imagine herself doing reflection for every single day. She also confessed her reason for not having much time to reflect.

For me, reflection is not something that I will find myself doing every day. I find it not really important and plus, I don't have much time to do self-reflection every day. (Student 3, Year 1)

On the other hand, another student stated that reflection was important. However, she did not have the time to reflect on a daily basis. Even though this student thought reflection was valuable, the action taken contraindicated with what she believed in, which is not spending time on reflection.

Reflection is important but at times I don't have time to do it on a daily basis. (Student 1, Year 1)

III.1.3. Product of reflection

The third theme observed was the product of reflection. There were three products of reflection namely; trigger, learn from mistakes and initiative to improve.

In the present study, reflection was revealed able to trigger many things. One student shared simply that by reflecting, it triggered her to remember what actually happened in the past, including the emotional turmoil that she has experienced. In addition, reflection triggered her to consciously think back about her failure and how everything went down after her first failure.

..I think what last year definitely has been an emotional roller coaster for me. I was so stressed out. I think my problem was that I couldn't move pas(t) my previous failure that it affects the exams that came afterwards. (Student 4, Year 2)

Meanwhile, some students revealed that reflection acts as a trigger as it served as a reminder to not repeating the exact same mistake.

It is a good thing. It remind(s) us to not be repeating the same mistake. (Student 4, Year 1)

Apart from triggering students to recall their past experiences, promote thinking and act as a reminder, reflection also triggered students to discover and realise about previous issues so they could immediately address them.

Yes, I think I really do need to do some reflecting. Primarily, the problems are there. It is just a matter of realization. I believe reflection is a method to discover and work on the problems. (Student 10, Year 1)

In summary, although reflection acted as a ‘trigger’ in several ways, eventually these students were becoming aware of the root cause of their academic underperformance.

The majority of underperforming students agreed that reflection helps them to learn from their mistakes. One student remarked that reflection is useful as she was able to identify her mistakes and improve herself. Although the act of reflection allowed her to remember back about her past experiences, it also made her feel embarrassed when she realised her mistakes.

Sometimes reflecting is beneficial for me because I get to pinpoint my mistake and work better to improve myself. However, sometimes I just get embarrassed from something my past self has done. (Student 22, Year 2)

In addition to learning from what went wrong in the past, one student also described that she was now aware of what went wrong with her studies. She elaborated that reflection helps to initiate realisation, recognise her inadequacies and propose solutions to fix the identified issues. It also seemed that her experience of academic failure has left a deep impression on her as she hoped not to disappoint her family again in the future.

I failed last year and I know that there is something wrong with my studies so I have to make my studies better and I hope that I will not disappoint my family anymore after this...Reflection is a good thing. I always reflect (on) myself so I realise what I'm lacking and will try to fix as (much as) possible as I can. (Student 7, Year 1)

Another student also presented evidence that reflection enabled him to be aware and learn from his mistakes by describing possible causes of his academic failure (i.e., poor understanding of learning material and lack of effort).

...I reflected and got to know that I have been progressing badly for the past year. Not knowing well about the content of (the) lecture and not putting enough effort to work things out. (Student 5, Year 1)

Apart from trigger and learning from mistakes, many students came to a consensus that reflection helped to initiate action for self-improvement. One student stated that reflection helps him to evaluate areas for personal development by identifying mistakes and possible areas for improvement. He also believed that reflection helps to shape his personal identity.

Reflection is a good way to analyse any component of personal development. By reflecting upon our actions, we can identify mistakes and possible areas

of improvement. I have a belief that reflection helps to shape my identity.
(Student 5, Year 1)

In addition, reflection is essential for self-improvement as it assists in recognising self and seeing oneself clearly. Even though some students believed so, they were still unsure if reflection could actually work.

Yes, it('s) worth it. Reflecting makes us recognize ourselves better, and look at ourselves clearer. It would be worth it if it can really work... Hopefully I could pass my final exam. (Student 17, Year 2)

Another student pointed out that reflection facilitated her in identifying what she may have done wrongly. As a result, she was able to jot down a list of improvements for herself. She believed that her academic underperformance happened for a reason, which subsequently shaped her positive outlook on her current situation. There was also a tinge of gratefulness as she was glad that she failed and learned from her mistakes. The act of reflection itself benefitted her as a reminder after she successfully identified on what to do next. From her reflection, it seemed that she was aware that failure can be a constant in life and it served to test all living beings. At the end of her reflection, there is a theme of spirituality as she concluded that she has been tested by her God. She believed that she has been tested because God loves her and believes that she could endure it.

As I had a session of reflection in my room, I have noted down the things that I might have not been doing right and wrote a list of improvements to be done. I started to believe that all of this happened for a good reason. I learned to look at this event positively and think that it is good that it happens now so I know what I can do in order for it to not happen again. This incident has taught me that everyone is bound to face failure at some point in their lives. It might just happen differently for certain people. I began to hold on to the quote, "If you never fail, you'll never learn. If you never learn, you never change." Failure is indeed part and parcel of life and this is also a test for me, as the Almighty tests those whom he loves and believes can endure it well. (Student 21, Year 2)

III.2. Year 1 and Year 2 underperforming students' perspective on the reflection guiding tool

There were three themes identified which are value of reflection guiding tool (RGT), product of RGT, and students' suggestions on RGT.

III.2.1. Value of reflection guiding tool

The underperforming students found RGT to be a valuable reflection tool. This was demonstrated when RGT triggered them to think back on their past experiences and allow them to learn from their previous mistakes. Although this reflective tool awakened forgotten memories that these students have peacefully accepted, they still considered RGT as valuable due to the lessons learned.

Although doing this guided reflection protocol gave me memories of things that I have forgot(ten) and move on, it is quite useful as it made me (...) think about the lessons I have learnt from all my past mistakes. (Student 1, Year 1)

One student informed that RGT enabled her to express and communicate her thoughts to other people. She viewed that this reflection tool gave her an opportunity to actually sit down and reflect on herself. This was corroborated by two students who argued that RGT gave underperforming students the opportunity to reflect and voice out their thoughts.

It is a very good platform for me to be able to vent out what is in my heart and tell someone else. A good and more formal way for me to be able to sit down and reflect on myself. (Student 9, Year 1)

..It is interesting that underperforming students are given a chance to voice out their thoughts. (Student 5, Year 1)

Some students also revealed that RGT permitted their expression of thoughts and feelings. This was demonstrated when the students expressed that they could verbalise their thoughts and feelings during the process of articulation. This also aids them in identifying and realising their mistakes. As a result, a change in action was possible due to the evoked awareness. At the same time, students were also grateful for giving them the opportunity to use the RGT. Students elucidated that they expressed better through writing which may not be revealed through one-to-one conversation.

I think this reflection is very good. I can express what I feel and again like I said, it makes me realized what I did wrong and helped me to change my study methods. Thank you for this idea of writing reflection. (Student 7, Year 2)

..Because I expressed myself better this way. If I have a face to face session, probably I will not talk too much like I did in this form. (Student 8, Year 2)

In addition, another evidence pointed out that RGT was valuable as it promotes them to think deeply on their past experiences. Students also mentioned that reflection assisted by RGT was especially essential after any failure or critical incidents.

Very good and makes me think (about) what I have done. Without this, I would never think so deeply what is happening. For me, after any failure or something bad happened, reflection is very important!!! (Student 2, Year 2)

Even though many students found RGT as valuable, there was a minority of them who viewed it as less valuable. One student explained that he was not keen in reflecting as he habitually keep sad things to himself as a source of encouragement.

I usually keep sad things in myself to spur myself further. So I'm not very keen (on) reflecting. (Student 5, Year 2)

Another student informed that she did not know how to answer the prompts provided in the RGT. For her, academic failure could be due to lack of effort in studying or massive amount of content to cover within a short period of time. Therefore, she perceived these possible causes of failure are not remarkable to reflect on. In addition, she also thought that long written reflection guided by the RGT was not necessary.

No. I don't know how to answer these questions. Sometimes people fail due to lack of studying or there's too much to cover in a short time. People don't feel anything great that there's something to reflect on. I don't think this much of reflection is needed. Sorry. (Student 19, Year 2)

Meanwhile, some underperforming students perceived this reflective tool as less valuable if they have personally reflected before. Moreover, some even admitted that they did not like spending time to reflect even with the guidance from RGT.

Well, I thought upon it and it may help me by some bit, even though I don't really think of it as useful right now...I didn't think it was important as I thought that I already had reflected before...Nevertheless, I'm fine with this reflection, just that I didn't like how I have to take some time off to do it... (Student 8, Year 1)

III.2.2. Product of reflection guiding tool

Majority of underperforming students described the role of RGT as a trigger. One student informed that RGT triggered him to think and find the

cause of his failure. This subsequently resulted in his realisations of the problems causing him to fail.

I think it is great. It helps me to find the cause of my failure. I am just glad that I have realized the problems. Thank you. (Student 10, Year 1)

Meanwhile, another student confessed that she has thought about her problems for quite some time. Fortunately, having RGT has helped her to make sense of everything as writing down her thoughts make them more tangible. As per guided by the reflection tool, her realisation was triggered through her writings that she had many things to improve on.

I have thought a lot about my problems on my own but typing it down made it more tangible. I realise there is a lot I have to improve. (Student 22, Year 2)

Another evidence also pointed out that RGT helped in triggering students' thinking. This was demonstrated when a student revealed that the reflection tool was useful in stimulating her to think about her purposes and goals in the medical school. She appreciated that RGT has helped to clear her mind in some ways.

It was great. Definitely useful as I thought more on why I came here and what I came to achieve. It cleared my mind in a way I guess. Thank you for that. (Student 1, Year 2)

The majority of underperforming students agreed that RGT helped them to learn from their mistakes. Some students informed that the reflective tool was helpful in reviewing and rectifying their mistakes. This subsequently served as a reminder for them to not repeating the same mistakes in the future.

The reflection was helpful as I got to review my mistakes and hopefully rectify them and never to repeat them in the near future. (Student 16, Year 2)

In addition, RGT encouraged self-expressions among students through the act of writing down on a piece of paper. One student confessed that she did not confide in someone as she found it difficult to trust other people. However, by writing down her plans as per guided by the RGT, this in turn, provides her with insight for her studies. This insight was viewed valuable in helping her to learn from mistakes.

I think it has helped me more in the sense that I got to express myself on paper. I haven't had the chance to confide (in) someone as I have a difficult time trusting another person...Writing down my plans to improve isn't

improvement itself, but it does provide me insight into how I should proceed with my studies. (Student 6, Year 2)

Evidences also revealed that RGT assisted in learning from mistakes which consequently leads to self-improvement. One student remarked that RGT was good as she was able to reflect on everything that she has previously done and thought on how to improve, so she can perform better in the future.

I think it is quite good because I (was) able to reflect all of the thing(s) that I have done and how to improve myself so that I can do better next time. (Student 3, Year 1)

III.2.3. Students' suggestions on reflection guiding tool

Many underperforming students found the RGT useful as it stimulated them on thinking and reflecting on the past. However, a small number of students stated that some of the questions in the RGT were repetitive and/or difficult to understand. As a result, they were either unsure of what to answer or simply re-wrote similar answers.

I think it's quite helpful to make me think and reflect about the past. However, some of the questions are repetitive and I wrote the same point for those question(s). It is good and beneficial as I try to reflect back on what had happen(ed). However, I can't really understand (...) what the question asked for. I think that the question is repeated. So, I'm not sure what to answer. (Student 4, Year 1)

One student also mentioned that not every students would express their true feeling when writing down their reflection in the RGT. She felt that self-expression works better through one-on-one dialogue. However, she appreciated the efforts put forth by the faculty in offering RGT for underperforming students to express their predicaments.

..not (many) people will express their true feeling, I think the reflection would work better if it was done one by one, like an interview. Once again, I would like to express my gratitude towards ..the faculty, for offering help, it's a really nice platform if you have nowhere to express your plight. (Student 17, Year 2)

Meanwhile, another student suggested for the RGT to be made available to all students regardless of their academic performance. He further added that RGT should also be made available throughout the year and not only after the announcement of student's failure in an assessment.

In my opinion, this protocol should be given as an option to anyone who feels that their academic life is problematic. It should be made available anytime and not only when a student has failed an exam. (Student 3, Year 2)

IV. Discussions and conclusion

IV.1. Reflect (Reflect on the strengths and limitations of the selected action)

We had asked our students to reflect on their learning experience and plan future actions. We told ourselves the same thing, we should reflect on the findings, and recognise the strengths and limitations of the RGT.

IV.1.1. Year 1 and Year 2 underperforming students' general thoughts on reflection

Findings for underperforming students' general thoughts on reflection revealed three major themes which are; past personal experience, value of reflection and product of reflection. It was interesting to note that reflection helped the majority of the underperforming students to recall⁶³ and accept their past experiences in order to engage and learn from them.⁶⁴ Some students confessed that reflection gave them a closure on what had happened. This finding echoes two past studies which showed that reflection leads to acceptance⁶⁵ and acknowledgement of own experiences.⁶⁶ However, we were surprised when the students first linked reflection to their past experiences. Although it was common that reflection is mostly about the past events, yet reflection could also occur before and during the experience itself (in-

⁶³ Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, "“Tweet”-Format writing is an effective tool for medical student reflection," *Journal of Surgical Education* 75, no. 5 (2018).

⁶⁴ Abigale L. Ottenberg, Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina, "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement," *Medical Teacher* 38, no. 7 (2016).

⁶⁵ Helen Bulpitt and Peter J. Martin, "Learning about reflection from the student," *Active Learning in Higher Education* 6, no. 3 (2005).

⁶⁶ Abigale L. Ottenberg, Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina, "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement," *Medical Teacher* 38, no. 7 (2016).

action).⁶⁷ Therefore, we concluded that there was a possibility in the way we posed question (i.e., leading question) that may affect students' answers. For instance, instead of asking, "What is your general thought on reflection?" we asked "Do you think you need to reflect on your experience of the past/past year? Describe." The rationale behind this approach was due to the context-specific, where underperforming students were asked about their understanding on reflecting about their past experiences.

In addition, findings helped to shed light on underperforming students' understanding or perception of reflection. It was noteworthy that the majority of these students perceived reflection as valuable, regardless of their reasons. Positive impression was essential for students to first be willing to spend their time in reflecting and subsequently improving their reflective practice. In the present study, having a wrong impression or misunderstanding about reflection (i.e., limited use of reflection and demotivating) seemed to hinder students in developing their reflective competence. Findings revealed that these students considered reflection as a mere act of thinking and not as an act of continuous self-improvement. These examples also indicate towards lack of awareness of reflection as a process. This coincided with one study where self-awareness is one of the barriers in developing reflective competence.⁶⁸

We also found similar findings in the past studies, where some students perceived reflection as time consuming⁶⁹ and/or they confessed of 'having lack of time' to reflect⁷⁰ which pointed to two possible explanations. Students who considered reflection as time consuming may have misunderstood the concept of reflection itself or they were less skilful in reflecting. Furthermore, it would be an arduous task for students who have never or seldom reflected as it takes time to learn new skills. Another explanation suggested that some of these students were not keen to reflect because they wanted to keep failure

⁶⁷ Quoc Dinh Nguyen, Nicolas Fernandez, Thierry Karsenti, and Bernard Charlin, "What is reflection? A conceptual analysis of major definitions and a proposal of a five-component model," *Medical Education* 48, no. 12 (2014).

⁶⁸ Helen Bulpitt and Peter J. Martin, "Learning about reflection from the student," *Active Learning in Higher Education* 6, no. 3 (2005).

⁶⁹ Charlotte Moen and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

⁷⁰ Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017); and Douglas P. Larsen, Daniel A. London, and Amanda R. Emke, "Using reflection to influence practice: Student perceptions of daily reflection in clinical education," *Perspectives on Medical Education* 5, no. 5 (2016).

to themselves as a source of inspiration. Yet, we believed that it could also be caused by the uncomfortable feeling or the vulnerability to reflect⁷¹ as reflection is very personal.

When asked about underperforming students' general thoughts on reflection, many students mentioned the product of reflection. Examples include; (1) trigger (e.g., recall memory, promote conscious thinking, reminder, realisation and self-expression), (2) learn from mistake (e.g., identify mistakes/inadequacies, promote awareness and resulted in self-improvement), and (3) initiative to improve (e.g., evaluation and learning about self, and action plan for self-improvement). Several of these products of reflection were also implicated in the previous research with the general population of students. For example, trigger to recall past experiences,⁷² promote thinking,⁷³ instigate self-awareness,⁷⁴ encourage self-expression,⁷⁵ self-evaluation resulted in a change and/or self-improvement,⁷⁶ and professional development.⁷⁷

One interesting observation in the present study was that reflection is not all about thinking and it may involve other aspects such as feeling and spirituality.⁷⁸ Students were observed to experience a wide range of

⁷¹ Linda Orkin Lewin, Nancy J. Robert, John Raczek, Carol Carraccio, and Patricia J. Hicks, "An online evidence based medicine exercise prompts reflection in third year medical students," *BMC Medical Education* 14, no. 1 (2014); and Charlotte Moen and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

⁷² Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, "'Tweet'-Format writing is an effective tool for medical student reflection," *Journal of Surgical Education* 75, no. 5 (2018); and David Boud, Rosemary Keogh, and David Walker, *Reflection: Turning learning into experience*, (London: Kogan Page, 1985).

⁷³ Abigale L. Ottenberg, Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina, "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement," *Medical Teacher* 38, no. 7 (2016).

⁷⁴ John Sandars, "The use of reflection in medical education: AMEE Guide No. 44," *Medical Teacher* 31, no. 8 (2009).

⁷⁵ Johanna Shapiro, Deborah Kasman, and Audrey Shafer, "Words and wards: A model of reflective writing and its uses in medical education," *Journal of Medical Humanities* 27, no. 4 (2006).

⁷⁶ Charlotte Moen and Patricia Prescott, "Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum," *International Journal of Medical Education* 7 (2016).

⁷⁷ Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, "'Tweet'-Format writing is an effective tool for medical student reflection," *Journal of Surgical Education* 75, no. 5 (2018).

⁷⁸ Helen Bulpitt and Peter J. Martin, "Learning about reflection from the student," *Active Learning in Higher Education* 6, no. 3 (2005).

emotions⁷⁹ when reflecting using the RGT. Examples from the present study include hope, disappointment, guilty and denial. This was in line with past studies where reflection allows students to assess and understand the affective aspect of their experiences.⁸⁰

IV.1.2. Year 1 and Year 2 underperforming students' perspective on the reflection guiding tool

On the other hand, findings for underperforming students' perspective on the RGT exposed three themes which were; value of RGT, product of RGT and students' suggestions on RGT. In comparison with reflection, there were two similar themes observed between these two research objectives namely; value and product. It was considered positive when there was an overlap and complementarity between the findings on students' perceptions on reflection and RGT which elucidated that RGT did fulfil the purpose of reflection. Similar with reflection, majority of underperforming students also found RGT as valuable.

In summary, many underperforming students were able to describe what reflection is and why reflection is important. Regrettably, it also means that these students were likely had not utilised reflective practices in remediating their academic underperformance. This was because if these underperforming students have reflected on their risks to fail earlier and take remediation actions to prevent further exacerbation, they would not eventually fail in their studies. In other words, reflections were likely not happen in students who claimed to know what reflection is and its importance.

Findings of the present study also suggested several recommendations to remediation coaches in cultivating reflective practices among underperforming medical students. Firstly, ego of medical students could be a barrier to the reflective practices. In the present study, these underperforming medical students had excellent academic results during their secondary and pre-university education. As reflection is a form of self-assessment which could provide feedback to oneself, a student's ego

⁷⁹ Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, "'Tweet'-Format writing is an effective tool for medical student reflection," *Journal of Surgical Education* 75, no. 5 (2018).

⁸⁰ Lynette Pretorius and Allie Ford, "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study," *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016).

may resist the feedback received⁸¹ during the process of reflecting. Consequently, feeling fragile due to failure (e.g., I don't want to face it) and feeling invulnerable to failure (e.g., I don't think I have failed) as they had been academically excellent (e.g., I am still good) could result in resistance to reflect (giving feedback to oneself).⁸² Therefore, at the initial stage, remediation coaches are encouraged to create a safe environment for these underperforming students to reflect on their risks to fail. Similarly, remediation coaches could help students to recognise that reflection could be the best 'pain reliever' for academic failures to release the feeling of insecurity and invulnerability to their academic failures.

IV.1.3. Lessons learned and future implications (Suggestion in using the RGT)

In the present study, reflection was not a formal and compulsory institutionalised task where the outcome may be limited⁸³ or 'less authentic'.⁸⁴ Rather, it was a voluntary and guided learning experience after the event of an academic failure. When students were writing their reflection as per guided by the RGT, they had indirectly examined the outcome of their reflection in the context of academic failure.

From observation, it seemed that most underperforming students were engaged in reflecting on their past learning experiences. It is then postulated that academic failure is a powerful and distressing event that could trigger most underperforming students to reflect. Therefore, it is imperative to provide sufficient time, space, support and collaborative interactions⁸⁵ to support students in developing their reflective competence. The present study also revealed similar finding to the past studies where guidance is necessary in teaching reflective competence.⁸⁶

⁸¹ Andrew Perrella, "Room for improvement: Palliating the ego in feedback-resistant medical students," *Medical Teacher* 39, no. 5 (2017).

⁸² Ibid.

⁸³ Helen Bulpitt and Peter J. Martin, "Learning about reflection from the student," *Active Learning in Higher Education* 6, no. 3 (2005).

⁸⁴ Jeremy A. Dressler, Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington, "'Tweet'-Format writing is an effective tool for medical student reflection," *Journal of Surgical Education* 75, no. 5 (2018).

⁸⁵ Helen Bulpitt and Peter J. Martin, "Learning about reflection from the student," *Active Learning in Higher Education* 6, no. 3 (2005).

⁸⁶ Vasudha Devi, Reem Rachel Abraham, and Ullas Kamath, "Teaching and assessing reflecting skills among undergraduate medical students experiencing research," *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017).

From the present study, we learned that RGT is a helpful reflection tool as it was able to achieve what was expected from a reflection. We also realised that it was necessary to have the underperforming students to reflect first-hand on their own guided by the RGT before attending the reflective dialogue. This would allow students to specifically put in efforts in allocating their own time and space to reflect. RGT is also viewed as a cathartic tool as it allows students to express their thoughts and feelings on a piece of paper or softcopy. Afterwards, students submitted their RGT which would be read prior to the interview. Through this, we were able to read every underperforming student's story and be fully prepared before meeting the students face-to-face during the interview day. This would allow us to be essentially empathetic. In addition, rapport and trust with the underperforming students were easily built with the availability of reflection through RGT. As a result, we were more aware and knew what to probe deeper during the reflective dialogue.

Based on the previous work by Schon, we realised that reflecting using RGT is reflection-on-action rather than reflection-in-action.⁸⁷ In this study, reflection-on-action happened when the underperforming students are reflecting on their academic failure in order to improve on their academic performance. Whereas reflection-in-action occurred when the students reflect in the midst of their actions (which are likely to result in failures) and alter their actions to avoid it from happening. Although RGT could only resulted in reflection-on-action, it is hoped that the reflective capacity that the students have acquired would be used for reflection-in-action in the future.

On the other hand, it was observed that there was a minority of students who wanted to shorten the RGT. Subsequently, this may imply that these students did not fully understand the concept of reflection. Therefore, we learned that as remediation coaches, we should provide them with clear instructions, as to do one phase at a time (i.e., RSA, BA). Additionally, remediation coaches also need to convince these students that true reflection do takes time but it is worthy to spend time on it. Alternatively, we plan to change or alter prompts for the whole one phase so that both phases do not appear the same for the students.

Broadly considering the importance of reflection in medical education, the study contributes to the evidences on utility of reflection, with a difficult set of study population; the underperforming students. Reflection and reflective practice are essential components in enhancing learning and refining purposeful actions, and the study has not used the tool generally among all medical

⁸⁷ Donald A. Schon, *Educating the reflective practitioner* (San Fransisco: Jossey-Bass, 1987).

students where this could be considered as an important limitation. This also echoes the suggestion given by one of the underperforming students where RGT could be extended to all of the medical students. Extending this suggestion, we realised that RGT could be modified to cater the needs of the other spectrum of students (i.e., high performing students), for example, by changing the prompt from “Reflect on past experience” to “Reflect on your successful learning experience”. Subsequently, high performing students could use RGT to reflect and identify their strengths (e.g., learning strategies and helpful attitudes and/or behaviours) that contributed to their success. Such practice could help high performing students to maintain or further enhance the contributing factors to their academic success. Given the sample size (43 students’ RGTs including eight students from the pilot studies) and our findings, the tool may be appropriate for wider use among learners from different contexts (not only limited to medical education).

IV.1.4. Future studies

The present study indicates more future studies in this area, specifically focussing on learning how underperforming medical students who experienced academic failure reflect. Additionally, future studies would also be beneficial in monitoring underperforming students who have used RGT after 3-6 months and to follow-up on their current condition (i.e., actions or changes made, improvements and issues faced).

Contrarily, not all students benefited from a guided reflection⁸⁸ as reflected in the present study. Present study revealed four Year 2 underperforming students (n=4) who utilised the RGT for more than once and still failed in their assessments. We still argue that reflection is essential (analogy: water), but recognising that reflection might not be the sole essentiality (analogy: water, air and sunlight for a plant), we should investigate what the other essentialities are.

IV.2. Conclusion

This action research describes the process of a team in developing a reflection guiding tool based on Gibbs’ reflective cycle. Findings suggest that

⁸⁸ Helen Bulpitt and Peter J. Martin, “Learning about reflection from the student,” *Active Learning in Higher Education* 6, no. 3 (2005).

RGT fulfilled its objectives and it could be further improved based on the findings. The RGT could also be used to guide underperforming medical students in reflecting on their academic failures.

Bibliography

- Bean, John P. "Dropouts and turnover: The synthesis and test of a causal model of student attrition." *Research in Higher Education* 12, no. 2 (1980): 155-187.
- Boud, David, Rosemary Keogh, and David Walker. *Reflection: Turning learning into experience*. London: Kogan Page, 1985.
- Brand, Sarah, Patrick Lancaster, Irene Gafson, and Helen Nolan. "Encouraging reflection: Good doctor or bad doctor?." *Medical Education* 51, no. 11 (2017): 1173-1174.
- Braun, Virginia, and Victoria Clarke. "Using thematic analysis in psychology." *Qualitative Research in Psychology* 3, no. 2 (2006): 77-101.
- Bulman, Chris, Judith Lathlean, and Mary Gobbi. "The process of teaching and learning about reflection: Research insights from professional nurse education." *Studies in Higher Education* 39, no. 7 (2014): 1219-1236.
- Bulpitt, Helen, and Peter J. Martin. "Learning about reflection from the student." *Active Learning in Higher Education* 6, no. 3 (2005): 207-217.
- Carr, Sandra E., and Paula H. Johnson. "Does self reflection and insight correlate with academic performance in medical students?." *BMC Medical Education* 13, no. 1 (2013): 113.
- Chaffey, Lisa Jane, Evelyne Johanna Janet de Leeuw, and Gerard Anthony Finnigan. "Facilitating students' reflective practice in a medical course: Literature review." *Education for Health* 25, no. 3 (2012): 198.
- Çimer, Atilla, Sabiha Odabaşı Çimer, and Gülşah Sezen Vekli. "How does reflection help teachers to become effective teachers." *International Journal of Educational Research* 1, no. 4 (2013): 133-149.
- Creswell, John. *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. 4th ed. Boston: Pearson, 2011.
- Dekker, Hanke, Johanna Schönrock-Adema, Jos W. Snoek, Thys van der Molen, and Janke Cohen-Schotanus. "Which characteristics of written feedback are perceived as stimulating students' reflective competence: An exploratory study." *BMC Medical Education* 13, no. 1 (2013): 94.
- Devi, Vasudha, Reem Rachel Abraham, and Ullas Kamath. "Teaching and assessing reflecting skills among undergraduate medical students experiencing research." *Journal of Clinical and Diagnostic Research: JCDR* 11, no. 1 (2017): JC01.
- Dewey, John. "Chapter One - What Is Thought?." In *How We Think*, 1-13. Boston: D.C. Heath & Co, 1910.
- Dressler, Jeremy A., Beth A. Ryder, Michael Connolly, Megan Dias Blais, Thomas J. Miner, and David T. Harrington. "'Tweet'-Format writing is an effective tool

- for medical student reflection.” *Journal of Surgical Education* 75, no. 5 (2018): 1206-1210.
- Foong, Chan Choong, Nik Nadia Nik Nazri, and Nurul Atira Khairul Anhar Holder. “I am Becoming a Doctor: Mine or Someone Else’s Will? Or Does it Even Matter? A Qualitative Investigation.” *EURASIA Journal of Mathematics, Science and Technology Education* 14, no. 7 (2018): 3253-3267.
- Gibbs, Graham. “Learning by doing: A guide to teaching and learning methods.” *Further Education Unit* (1988).
- Gill, Gobinder Singh. “The Nature of Reflective Practice and Emotional Intelligence in Tutorial Settings.” *Journal of Education and Learning* 3, no. 1 (2014): 86-100.
- Hargreaves, Ken. “Reflection in medical education.” *Journal of University Teaching and Learning Practice* 13, no. 2 (2016): 6.
- Hayton, Amy, Ilho Kang, Raymond Wong, and Lawrence K. Loo. “Teaching medical students to reflect more deeply.” *Teaching and Learning in Medicine* 27, no. 4 (2015): 410-416.
- Husebø, Sissel Eikeland, Stephanie O’Regan, and Debra Nestel. “Reflective practice and its role in simulation.” *Clinical Simulation in Nursing* 11, no. 8 (2015): 368-375.
- Kalet, Adina, Jeannette Guerrasio, and Calvin L. Chou. “Twelve tips for developing and maintaining a remediation program in medical education.” *Medical Teacher* 38, no. 8 (2016): 787-792.
- Koshy, Elizabeth, Valsa Koshy, and Heather Waterman. *Action Research in Healthcare*. Sage, 2010.
- Langendyk, Vicki, Glenn Mason, and Shaoyu Wang. “How do medical educators design a curriculum that facilitates student learning about professionalism?.” *International Journal of Medical Education* 7 (2016): 32.
- Larsen, Douglas P., Daniel A. London, and Amanda R. Emke. “Using reflection to influence practice: Student perceptions of daily reflection in clinical education.” *Perspectives on Medical Education* 5, no. 5 (2016): 285-291.
- Lewin, Linda Orkin, Nancy J. Robert, John Raczek, Carol Carraccio, and Patricia J. Hicks. “An online evidence based medicine exercise prompts reflection in third year medical students.” *BMC Medical Education* 14, no. 1 (2014): 164.
- Mann, Karen, Jill Gordon, and Anna MacLeod. “Reflection and reflective practice in health professions education: A systematic review.” *Advances in Health Sciences Education* 14, no. 4 (2009): 595.
- Miller-Kuhlmann, Rebecca, Patricia S. O’Sullivan, and Louise Aronson. “Essential steps in developing best practices to assess reflective skill: A comparison of two rubrics.” *Medical Teacher* 38, no. 1 (2016): 75-81.
- Mitchell, Veronica Ann. “Diffracting reflection: A move beyond reflective practice.” *Education as Change* 21, no. 2 (2017): 165-186.
- Moen, Charlotte, and Patricia Prescott. “Embedding a patchwork text model to facilitate meaningful reflection within a medical leadership curriculum.” *International Journal of Medical Education* 7 (2016): 372.

- Moniz, Tracy, Shannon Arntfield, Kristina Miller, Lorelei Lingard, Chris Watling, and Glenn Regehr. "Considerations in the use of reflective writing for student assessment: Issues of reliability and validity." *Medical Education* 49, no. 9 (2015): 901-908.
- Nguyen, Quoc Dinh, Nicolas Fernandez, Thierry Karsenti, and Bernard Charlin. "What is reflection? A conceptual analysis of major definitions and a proposal of a five-component model." *Medical Education* 48, no. 12 (2014): 1176-1189.
- O'Reilly, Sharleen L., and Julia Milner. "Transitions in reflective practice: Exploring student development and preferred methods of engagement." *Nutrition & Dietetics* 72, no. 2 (2015): 150-155.
- Ottenberg, Abigale L., Dario Pasalic, Gloria T. Bui, and Wojciech Pawlina. "An analysis of reflective writing early in the medical curriculum: The relationship between reflective capacity and academic achievement." *Medical Teacher* 38, no. 7 (2016): 724-729.
- Perrella, Andrew. "Room for improvement: Palliating the ego in feedback-resistant medical students." *Medical Teacher* 39, no. 5 (2017): 555-557.
- Philip, Lucy. "Encouraging reflective practice amongst students: A direct assessment approach." *Planet* 17, no. 1 (2006): 37-39.
- Pintrich, Paul R. "The role of metacognitive knowledge in learning, teaching, and assessing." *Theory into Practice* 41, no. 4 (2002): 219-225.
- Plack, Margaret M., Maryanne Driscoll, Sylvene Blissett, Raymond McKenna, and Thomas P. Plack. "A method for assessing reflective journal writing." *Journal of Allied Health* 34, no. 4 (2005): 199-208.
- Pretorius, Lynette, and Allie Ford. "Reflection for Learning: Teaching Reflective Practice at the Beginning of University Study." *International Journal of Teaching and Learning in Higher Education* 28, no. 2 (2016): 241-253.
- Rodgers, Carol. "Defining reflection: Another look at John Dewey and reflective thinking." *Teachers College Record* 104, no. 4 (2002): 842-866.
- Sandars, John. "The use of reflection in medical education: AMEE Guide No. 44." *Medical Teacher* 31, no. 8 (2009): 685-695.
- Sandars, John, Rakesh Patel, Helen Steele, and Martin McAreavey. "Developmental student support in undergraduate medical education: AMEE Guide No. 92." *Medical Teacher* 36, no. 12 (2014): 1015-1026.
- Schon, Donald A., *Educating the reflective practitioner*. San Francisco: Jossey-Bass, 1987.
- Seymour, Patricia, and Maggie Watt. "The Professional Competencies Toolkit: Teaching reflection with flash cards." *Medical Education* 5, no. 49 (2015): 518.
- Shapiro, Johanna, Deborah Kasman, and Audrey Shafer. "Words and wards: A model of reflective writing and its uses in medical education." *Journal of Medical Humanities* 27, no. 4 (2006): 231-244.
- Trumbo, Silas P. "Reflection fatigue among medical students." *Academic Medicine* 92, no. 4 (2017): 433-434.
- Tsingos, Cherie, Sinthia Bosnic-Anticevich, John M. Lonie, and Lorraine Smith. "A model for assessing reflective practices in pharmacy education." *American Journal of Pharmaceutical Education* 79, no. 8 (2015): 124.

- Wagenschutz, Heather, Erin McKean, Katie Zuraes, and Sally A. Santen. "Facilitating guided reflections on leadership activities." *Medical Education* 50, no. 11 (2016): 1149-1150.
- Wald, Hedy S., Jeffrey M. Borkan, Julie Scott Taylor, David Anthony, and Shmuel P. Reis. "Fostering and evaluating reflective capacity in medical education: Developing the REFLECT rubric for assessing reflective writing." *Academic Medicine* 87, no. 1 (2012): 41-50.
- Wilding, Peter Mark. "Reflective practice: A learning tool for student nurses." *British Journal of Nursing* 17, no. 11 (2008): 720-724.

Appendix 1: Simple Reflection Essay

- a. You failed Year 1, what happened?
- b. You are repeating Year 1, what are you planning to do, if any, to make a difference?
- c. Add any other matters that you would like to express your feelings on.

Appendix 2 (i): Reflection Guiding Tool (RGT for those who failed their RSA)

INSTRUCTIONS

Hello. My name is Dr. Atira.

First of all, I would like to thank you for your willingness to be involved with this intervention. This guided reflection consists of 4 main questions. There are no right, wrong, desirable or undesirable answers. I would like you to feel comfortable to express what you really think and how you really feel.

The purposes of these questions are to help me to get to know you better. I also would like to understand your motives and motivation in pursuing medicine. As you read through this paper, you will realise that majority of the questions are mainly aimed to help you reflect on what has happened during last year and think of a solution to avoid the same things happening in the future.

Kindly go through each one of them and give your response.

Do you think you need to reflect on your experience of the past? Describe.

Q1. TELL ME ABOUT YOURSELF.

Personal (Name, Date of birth, Age, Unique or special things about you, Previous academic experiences and achievements before entering University of Malaya)

Family (Hometown, Parents' occupation, Parents' academic background, Siblings, Any of your family members in the medical profession?)

Q2. REASONS OF PURSUING MEDICINE.

Why did you choose to study medicine?

Do you had any pre-existing knowledge about medical profession? If so, your source?

Your pre-university results were excellent; why not consider choosing other courses?

After your unsuccessful attempt, what made you come back to study for the subsequent blocks? Are you ready in terms of mental preparation and physical health?

What motivates you to continue your studies?

What kind of doctor do you want to be?

Q3. REFLECT ON PAST EXPERIENCE.

(i) From start of the year to RSA



3a. How was your RSA result?

What was your initial feeling when getting to know your result? How did you manage your emotion/stress at that time? Any changes seen within yourself? (Personality, appetite etc.)

3b. What happened? (Did you encounter any problem in terms of your study approach during that time?) How did you cope?

Elaborate more on your study style:

- How did you prepare to learn from the lectures/teaching sessions?
- How was your attendance (%)?
- How would you describe your attention/behaviours during lectures/teaching sessions?
- What did you do to revise the content learnt after the lectures/teaching sessions? Describe if you have done.
- How did you manage your study and social activities during weekends?

3c. What happened? (Did you encounter any problem in terms of your social life during that time?) How did you cope?

3d. What happened? (Did you encounter any problem in terms of your personal life/family during that time?) How did you cope?

3e. Any other things you would like to share?

3f(i). Take a deep breath and relax. Now, would you consider any of the above mentioned reasons to be the initiating event leading to your unsuccessful attempt? Justify.

3f(ii). What were you thinking and feeling during that situation? And why?

3f(iii). What did you learn from that situation?

(iv). Why did you think that situation happened?

3f(v). If you have a chance to change your action at that time, what would you do?

3f(vi). Based on what had happened, did you prepare an action plan for the forthcoming BA? Describe, if any.

3f(vii). How did you make sure that you carry out your action plan properly? Describe.

Q4. SECOND ATTEMPT.

How do you feel right now?

Based on what had happened, do you have an action plan/any strategy for this year (Second attempt)? Describe, if any.

How can you make sure that you will carry out your action plan properly?

What kind of support do you need from the Faculty? Elaborate.

Is there anything else that you want to let us know?

Now, being honest with yourself, think deeply and reflect. Do you wish to continue studying medicine or do you wish to quit? Give reasons to support your statement.

Last question: Your views on this reflection guiding tool?

Thank you for your time and efforts.

Appendix 2 (ii): Reflection Guiding Tool (RGT for those who need to repeat the whole year due to failure in BA)

INSTRUCTIONS

Hello. My name is Dr. Atira.

First of all, I would like to thank you for your willingness to be involved with this intervention. This guided reflection consists of 4 main questions. There are no right, wrong, desirable or undesirable answers. I would like you to feel comfortable to express what you really think and how you really feel.

The purposes of these questions are to help me to get to know you better. I also would like to understand your motives and motivation in pursuing medicine. As you read through this paper, you will realise that majority of the questions are mainly aimed to help you reflect on what has happened during last year and think of a solution to avoid the same things happening in the future.

Kindly go through each one of them and give your response.

Do you think you need to reflect on your experience of the past? Describe.

Q1. TELL ME ABOUT YOURSELF.

Personal (Name, Date of birth, Age, Unique or special things about you, Previous academic experiences and achievements before entering University of Malaya)

Family (Hometown, Parents' occupation, Parents' academic background, Siblings, Any of your family members in the medical profession?)

Q2. REASONS OF PURSUING MEDICINE.

Why did you choose to study medicine?

Do you had any pre-existing knowledge about medical profession? If so, your source?

Your pre-university results were excellent; why not consider choosing other courses?

After your unsuccessful attempt last year, what made you come back to study this year? Are you ready in terms of mental preparation and physical health?

What motivates you to continue your studies?

What kind of doctor do you want to be?

Q3. REFLECT ON PAST EXPERIENCE.

(i) From start of the year to RSA



3a. How was your RSA result?

What was your initial feeling when getting to know your result? How did you manage your emotion/stress at that time? Any changes seen within yourself? (Personality, appetite etc.)

3b. What happened? (Did you encounter any problem in terms of your study approach during that time?) How did you cope?

Elaborate more on your study style:

- How did you prepare to learn from the lectures/teaching sessions?
- How was your attendance (%)?
- How would you describe your attention/behaviours during lectures/teaching sessions?
- What did you do to revise the content learnt after the lectures/teaching sessions? Describe if you have done.
- How did you manage your study and social activities during weekends?

3c. What happened? (Did you encounter any problem in terms of your social life during that time?) How did you cope?

3d. What happened? (Did you encounter any problem in terms of your personal life/family during that time?) How did you cope?

3e. Any other things you would like to share?

3f(i). Take a deep breath and relax. Now, would you consider any of the above mentioned reasons to be the initiating event leading to your unsuccessful attempt? Justify.

3f(ii). What were you thinking and feeling during that situation? And why?

3f(iii). What did you learn from that situation?

3f(iv). Why did you think that situation happened?

3f(v). If you have a chance to change your action at that time, what would you do?

3f(vi). Based on what had happened, did you prepare an action plan for the forthcoming BA? Describe, if any.

3f(vii). How did you make sure that you carry out your action plan properly? Describe.

(ii) From RSA to BA



3a. What were your expectation regarding the BA exam? (Pass? Fail? Unsure?) Justify your answer.

3b. What happened? (Did you encounter any problem in terms of your study approach during that time?) How did you cope?

Elaborate more on your study:

- How did you prepare to learn from the lectures/teaching sessions?
- How was your attendance (%)?
- How would you describe your attention/behaviours during lectures/teaching sessions?
- What did you do to revise the content learnt after the lectures/teaching sessions? Describe if you have done.
- How did you manage your study and social activities during weekends?

3c. What happened? (Did you encounter any problem in terms of your social life during that time?) How did you cope?

3d. What happened? (Did you encounter any problem in terms of your personal life/family during that time?) How did you cope?

3e. Any other things you would like to share?

3f(i). Take a deep breath and relax. Now, would you consider any of the above mentioned reasons to be the initiating event leading to your unsuccessful attempt? Explain why.

3f(ii). What were you thinking and feeling during that situation? And why?

3f(iii). What did you learn from that situation?

3f(iv). Why did you think that situation happened?

3f(v). If you have a chance to change your action at that time, what would you do?

3f(vi). Based on what had happened, did you prepare an action plan for Supplementary Exam? Describe, if any. **(If applicable to you)**

3f(vii). How did you make sure that you carry out your action plan properly for Supplementary Exam? Describe. **(If applicable to you)**

Q4. SECOND ATTEMPT (THIS YEAR).

How do you feel right now?

Based on what had happened, do you have an action plan/any strategy for this year (Second attempt)? Describe, if any.

How can you make sure that you will carry out your action plan properly?

What kind of support do you need from the Faculty? Elaborate.

Is there anything else that you want to let us know?

Now, being honest with yourself, think deeply and reflect. Do you wish to continue studying medicine or do you wish to quit? Give reasons to support your statement.

Last question: Your views on this reflection guiding tool?

Thank you for your time and efforts.

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Developing a Reflection Guiding Tool for underperforming medical students: An action research project

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