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Critical reflection on postgraduate learning: education through sharing

Jean Marco[1]*, MD, FESC; Allan Spencer[2]; Magali Bréhèret[3]

1. PCR Education solutions group, Martres Tolosane, France; 2. Clarus Training and Facilitation Ltd, Kenilworth, United Kingdom; 3. Cath-Link, Echandens, Switzerland

Postgraduate learning refers to a specific form of education aiming to help healthcare professionals (HCP) to consolidate competence and learn about information in their field. It is associated with human interaction. Examining, questioning, and revising how learners construe, validate, and reformulate the meaning of their experience and how learners develop expectations based on their thought is key to achieving effective learning outcomes[1].

We have spent a lifetime in the field of postgraduate learning and adult education[2,3].

We have seen what is effective and what is not and would like to share our experiences.

The purpose of this editorial is to challenge some of the assumptions and orthodoxies on medical postgraduate learning and to explore alternative perspectives and options for new roles that create the desire for change.

The *fil rouge* is: placing the learner at the very centre of the learning process.

Challenging some assumptions and orthodoxies on postgraduate learning

FROM THE PERSPECTIVE OF A HEALTHCARE PROFESSIONAL, WHAT IS THE FUNDAMENTAL GOAL OF POSTGRADUATE LEARNING WITHIN MEDICINE?

We have conducted surveys and interviews on this key point, so, let us look at the most frequent answers to the question, "what are your expectations when you participate in a postgraduate learning programme or session?" The most frequent answers we get are:

- To find solutions and resolve difficulties I face in my practice.
- We are confronted with a flow of information. I wish to be guided to understand better which of the new drugs, new devices or new approaches could really provide better outcomes for my particular patients.
- To help me to understand if I need to apply these recently disseminated data on…(a particular drug, intervention, device or technique)…in my practice, and on which patients, taking into consideration the constraints I face locally.
- To listen to critical reflections on recently disseminated information or recommendations or…to help me in the decision-making process for particular patients presenting with…
- To be sure that what I am doing in a particular situation is the best approach or to understand if I need to change my practice to achieve better outcomes.
- To know my colleagues' thoughts on situations I frequently face - to know if they are facing the same situations and to understand how I could improve the outcome.

The key finding flowing from these surveys is that the expectations of HCP attending postgraduate events are to have a self-directed and clear reason for learning, using a problem-centred approach that will help them to consolidate their professional

*Corresponding author: PCR Education solutions group, Martres Tolosane, France.
E-mail: jeanmarco31220@gmail.com

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competency that is relevant to their daily practice. Accordingly, we propose the following statement.

The fundamental goal of postgraduate medical learning is to consolidate the professional proficiency of HCP.

This helps them to select and apply the most appropriate and economically sustainable management or technical strategy for each individual patient presenting with a specific clinical situation. This needs to be carried out in the light of their self-reflection on knowledge, experience, and the local constraints they face. The consolidation of professional proficiency is the main goal and reflecting on knowledge and experience is the means to reach this goal.

WHAT IS AT THE HEART OF THE PROBLEM?

The easy access to information via digital tools and journals is the source of a disorienting dilemma or of cognitive conflicts: we are overloaded with a continuous flow of information.

As HCP, at each step of our career, we develop personal learning needs and expectations. These are based on our own reflection on the information, our level of experience and knowledge and the changes we want to make in our professional practice. We also have the means to select the most appropriate learning format that will help consolidate our professional proficiency. This progressively pushes us towards the paradigm of "self-directed learning"[4,5].

It follows from this that the learners themselves need to be involved in selecting what should be included in their learning programmes and not just a faculty or course directors or speakers who select what the attendees need to learn and hear, the learning material and how the learning content should be delivered and assessed[6].

This new approach requires a new learning process – one that is built around the active involvement of participants. It needs to incorporate their experience and provide the opportunity to self-reflect on the disseminated information to achieve effective learning outcomes.

This sounds like it might be a difficult thing to do, but it is not.

WHAT DOES AN EFFECTIVE POSTGRADUATE LEARNING OUTCOME ACTUALLY MEAN?

Examining the effectiveness of the learning outcomes requires us to put ourselves in the position of the participant[5].

We conducted numerous surveys asking, "what have been the most effective learning sessions you have attended as a participant?" and "what happened that helped to make this learning event(s) or session(s) effective for you?".

Let us examine the most frequent answers:

- The content was related to my practice, special interest and expectations.
- The objectives were clear and relevant to my special interest.
- I was able to reflect on new information that could help me to improve my competency.
- Confirmation that my colleagues faced the same challenges and problems on the topic.
- The content was delivered and explained in a logical sequence, by a charismatic speaker - the flow of information was easy to follow.
- A complex topic was presented in a simplified way, the techniques explained in a step-by-step process.
- The examples were practical and relevant to my problems.
- There was a great dialogue between teacher and participants with the opportunity to ask questions and get clear answers.
- Experiences were shared by all attendees.
- Only a few slides were used – these were simple, easy to follow and relevant.
- Key messages were clear and easy to memorise.

We can summarise all this as follows:

A postgraduate syllabus, session or lecture is considered effective by the participants when the objectives are participant-oriented, clear and in line with their needs and expectations, both the framework and working flow are logically linked with the objectives and are easy to follow, the content is oriented towards problem solving rather than information, and delivery is conducted by charismatic educators who facilitate participants' autonomous thinking, using appropriate media to help memorise clear messages. Effective postgraduate learning really takes place when participants are placed at the centre of the learning process and take an active part in it.

Exploring alternative perspectives, new roles, relationships and actions

We need a learning process that places the participants at its core and one which will encourage them to play an active part. This requires new roles for educators, learners and professional development.

WHAT IS THE NEW ROLE OF EDUCATORS?

FIRST, AND MOST IMPORTANTLY, IT IS TO ENCOURAGE EVERYONE INVOLVED TO EXPLORE AND UNDERSTAND THE LEARNING EXPECTATIONS (AND NEEDS) OF A TARGET AUDIENCE ON A PARTICULAR TOPIC

The learning has to be oriented towards problem solving and it needs to stimulate the learners (participants) to reflect critically on their knowledge and experience[2].

A helpful starting point for educators is to ask themselves a few simple questions. As an example, for a learning syllabus or session dealing with skill or behavioural problems[7]:

- What problems or dilemmas am I facing in this field?
- What do I need to change to resolve these problems and improve my performance?
- Do my colleagues or peers, working in other institutions or in different regions or countries or with different levels of experience in the field (our target audience) face the same patients and problems?
- What specific things will help them improve their performance in the field?
- Do they have all the same means available as I do to solve the same issues?

– What potential barriers may get in the way of my colleagues improving their outcomes in the field?
– What do I need to do to find out if my colleagues are facing the same problems or dilemmas in the field?

Starting with a self-examination of issues and critical assessment of assumptions is helpful for identifying learning expectations.

When preparing a learning syllabus or session aiming to reflect on knowledge or new recommendations requires a more self-reflective process. We can do this by asking ourselves:

– What was the state of our ignorance in this field (what didn't we know) 1 or 2 years ago in the field?
– What is the state of our ignorance (what we don't know) today?
– What are the 1 or 2 pieces of peer-reviewed published information that created change during this period?

It is helpful to remember that very little essential scientific information actually creates a real change in the state of our ignorance in a short period of time. New information is quickly and widely disseminated and all HCP have easy access to information. Asking the following questions can be helpful:

– Did I scientifically and critically analyse the whole content and the limits of the information?
– Do I consider the information to be essential to provide patients with a better clinical outcome?
– What arguments could support my judgement? Is it strong evidence or is it just an interesting hypothesis?
– Do I consider this information as interesting and to be shared with my audience?

What would be the purpose of doing this? To stimulate participants' critical reflection or to raise questions? We have to be clear about the purpose.

To move towards a participant-oriented paradigm is essential to assess whether the problem or gap we identified is currently relevant to the needs or expectations of the target audience.

This is where digital tools and web-based enquiries can really help[8].

We can integrate our target audience into the learning process by asking them relevant questions about a practical example or recent study to check that we are meeting their needs and gaps. In this way, the new or unmet needs of our target audience can be built into the learning session during the design stage.

Once educators really understand the learning gaps and expectations of the target audience, they can set clear proficiency-oriented objectives for the participants that foster their autonomous thinking and critical reflection.

TO SET CLEAR PROFICIENCY-ORIENTED OBJECTIVES FOR PARTICIPANTS THAT FOSTER THEIR AUTONOMOUS THINKING AND CRITICAL REFLECTION[9].

Autonomous thinking simply means thinking for ourselves and making our own judgements.

Critical reflection is the process we use to evaluate our current practice, think about what is desirable, consider what is possible, and develop new understandings that inform our actions.

Proficiency-oriented objectives are those that focus on improving performance for successful achievement of defined tasks.

The educators need to specify what we want the participants to acquire, at the end of the syllabus or session, why and how this will be done.

WHAT – these are the things that participants will actually acquire or be able to do to improve their proficiency to provide their patients with the best possible outcomes.

WHY − to consolidate proficiency and propose what is most appropriate for the best patient outcomes.

HOW – how is the process we use to help participants' critical reflection (i.e., a step-by-step decision-making approach… or evidence-directed decision making or other…) practical and applicable the next day or in the near future?

The learning objectives will help educators to identify the real outcomes needed to improve performance and patient outcomes.

Once educators know what is needed, the next step is to set about designing the framework that delivers the learning objectives by stimulating the autonomous thinking of the participants on their knowledge, information and experience.

HOW TO SET ABOUT DESIGNING A FRAMEWORK LOGICALLY LINKED TO THESE OBJECTIVES.

Let us examine what participants said about "ineffective sessions":

– Too much information leading to overload.
– No time to express thinking or questions.
– Level of detail too complex (out of line with my practical needs).
– More interaction between the learner and the teacher would be helpful in creating a better learning experience.
– Everyone acts as if they know everything…it makes people afraid to ask questions.
– A more effective approach would be for course directors to define learning aims/goals, and then ask learners what they need to have presented to achieve these goals.
– The speaker imposed his expectations on me and made me look foolish.

If we want to avoid these pitfalls, the design framework will need to ensure participants are able to:

– Express their specific needs and expectations.
– Reflect critically on the information, assumptions, and alternative perspectives.
– Participate effectively in debate to assess the value of the information.
– Collaborate with one another to develop a consensus on the essentials.

To achieve these goals, educators always have to start by clarifying the key messages and then think about the key sections needed to deliver them[7]. For example, in order to help participants to understand or to do…(two to three objectives), the following two or three sections are needed. Then, write down the key messages we want the participants to retain at the end of each key section like this:

At the end of section one, the participants will be able to retain…in order to…

Educators need to be realistic with the allocated time and the capability of participants to participate, maintain their attention and ability to remember, by selecting only the essential or interesting information and the experiences they want to share.

Adopting the Plus, Minus, Interesting **(PMI)** learning concept[7] is useful:

Plus: these are the essential messages that you need to deliver. Remember, your audience has easy access to an overload of information…they want you to guide them on the essentials!

Minus: is the devil who orders speakers to be exhaustive and not to forget something. The fear of not being credible. Ignore what is not essential: it will cause participants to become discontent.

Interesting: be clear about why you are including something, e.g., is it to stimulate questions or comments from the participants? Be sparing, use as few examples as possible.

The other essential point when preparing the framework and timeline is to leave enough time for the unpredictable, i.e., an unpredictable question or comment. Flexibility has to be a part of the framework. The participants will appreciate it.

HOW TO SET ABOUT USING THE MULTISENSORY LEARNING MEDIA TO HELP THE PARTICIPANTS TO MEMORISE MESSAGES

Multisensory learning media[10]

Multisensory learning media includes all the tools and techniques of communication which can be used to enhance participants' capacity to remember information, messages, tips, tricks and techniques. It does this by making a visual, aural or tactile connection with them. It includes the use of written documents, PowerPoint presentation, case-based examples on videos, or broadcast in live technical interventions, interactive debate or discussion between peer groups on their experiences, orally delivered messages or critical thoughts on knowledge or experience, hands-on activities with devices or models and tactile activities on digital tools and role-play. Also, and importantly, it includes the educator's stage presence, attitudes, voice tone, flow, pauses and gestures during the discourse as well as the interactivity with and between participants using case stories and scenarios. The use of different multisensory learning media creates a positive change in the learning outcomes. However, these are only tools, and should always be selected to support or enhance objectives and messages we want to transmit.

Problem-oriented case-based examples (cases presentations, recorded technical interventions or technical interventions broadcast live) are educationally very strong. They highlight problems, difficulties, complications, effective or ineffective practices, treatment or technical options, and key messages.

Be careful! To create a high educative quality case-based example supporting one key message requires significant time and effort. The risk is that they can default into what is "nice to show" or "a great operator performance" instead of supporting one key message.

Critical reflections about live demonstrations[11]

Educationally, these are very strong tools to help improve the proficiency of participants on a particular technical strategy or technique. They require qualities of discipline and high technical ability from the whole live demonstration team (operators, staff, technicians, film crews, etc.). They are expensive and require significant funding. They have some risks: they can become "a show" focused on the skills of a particular operator instead of a learning tool that supports clear messages. The learning content and messages can also be biased by some conflicts of interest involving the promotion of certain centres, devices or machines.

Because live demonstrations are educationally very strong, less experienced operators could be tempted to do the same: "I saw it, I can do it!". In addition, of course, ethical considerations together with specific professional development and recommendations are mandatory.

Critical views on PowerPoint presentation[12,13]

PowerPoint is only a tool aimed at helping participants to memorise ideas or messages by making a visual connection with them. The effective application of PowerPoint can produce some outstanding results, but only if some key rules are respected and its strengths and weaknesses understood. It is very common during the feedback of a session to hear comments such as "there were too many slides", "the slides were too complex", "too much text", "difficult to read", "difficult to follow"…

The main weaknesses of PowerPoint are that it is too easy to create complex content or copy-paste published information or slides, it takes too much control away from the presenter, poorly thought-out slides reduce an audience's engagement and attention, using too many slides does not lend itself to interactive discussions, the slides become a replacement for the presenter, presenters rely too much on the slides for their structure, presenters fail to make their messages memorable.

It is useful to remember Albert Einstein's words: "If you can't explain it simply, you don't understand it well enough". He also said: "Everything should be made as simple as possible, but not simpler".

So, get the balance right and your audience will really appreciate it. The key challenge is to avoid cognitive overload by presenting learning messages in a way that knowledgeable participants can assimilate.

The use of all the other sensory learning media[10]

Visual tools are only a part of the multisensory learning media. Educators have to understand and use all the other tools optimally to achieve optimal learning outcomes. The classic podium, with the speaker behind a computer reading slides, creates a barrier (a wall) between him/her and the participants. To deliver messages effectively, this wall needs to be removed. The educator needs to become a little more like the actor where tone of voice, flow and pause in the discourse, body language, gestures and interaction with the participants and the scenario help to achieve optimal learning outcomes.

Interactive discussions are part of multisensory media. Interactivity is a tool used to encourage participants to talk about

their expectations or needs. It can help to stimulate their autonomous thinking on information, beliefs and assumptions. It is also very valuable in helping participants to propose alternative perspectives by participating in low-risk discussions to assess the value of information. It also helps participants to collaborate with one another and to share and benefit from each other's experience.

In summary, interactivity does not just happen; it is part of multisensory learning and is a very powerful technique that helps participants to remember key messages. It must be prepared and planned as carefully as the visuals!

HOW TO SET ABOUT DESIGNING THE SCENARIO[14]

The goal of scenario design is to create a safe environment that helps participants to be critically reflective and to remember the key messages. There are many details involved … the light, set-up of the room…sound quality…screen positioning…

An important principle is that all visuals which could divert attention (logos, pictures, multiple screens, etc.) must be avoided.

THE ROLE OF PROFESSIONAL DEVELOPMENT

The role of a specific professional development is fundamental to create the desire to move from the teacher-directed learning model (or banking model) where the students are seen as containers into which teachers must pour their knowledge towards a participant-directed learning model.

All stakeholders involved in the postgraduate learning processes, the builders and key actors (educators, speakers, trainers…) have to be guided to foster a critical reflection on current teaching practices, the assumptions that underlie these practices and the consequences of these assumptions and to reflect critically on alternative perspectives. To achieve this requires developing a specific and practical professional development syllabus, strategy and curriculum for future educators which helps them to develop alternative perspectives on teaching.

It is the role of professional development to provide practical solutions to the following issues:

- How to evaluate the expectations (and needs) of a specific target audience.
- How to get a better understanding as to WHAT their problems are and WHY.
- How to set clear objectives that achieve the goals of participant-centred learning programmes, and how to evaluate the outcomes.
- How to build efficient programmes that meet the evolving expectations of participants within the time constraints of the project.
- How to use "multisensory" learning media effectively to support the learning and participants' expectations and to become an effective facilitator.
- How to move from a didactic teaching approach to that of a learning facilitator, enabling participants to be guided through a transformative teaching/learning experience.
- How to build a continuous assessment process that achieves the objective of improving the skill and proficiency of the participants.

The strategy for such transformative professional development includes action plans, curriculum development, reflective activities, case studies, critical-theory discussions.

Curriculum development could create the opportunity to connect theory and practice. In addition to introducing new teaching techniques, educators can test and compare this education through sharing learning perspectives and practices with previous experiences.

Concluding remarks

We have challenged some of the assumptions and orthodoxies on medical postgraduate learning and we have explored options for alternative transformative perspectives designed to create a change.

What we have advocated has been successfully applied over many disciplines during the last few years and we know it is effective!

All HCP, and specifically those wishing to become future educators, should look carefully into the processes we have discussed. Putting learners at the centre of the educational process is effective and transformative.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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